

EXHIBIT 1

REDACTED
PENDING MOTION TO SEAL



OCEAN TOMO

INTELLECTUAL CAPITAL EQUITY

**UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS**

CASE NO. 1:19-CV-12533

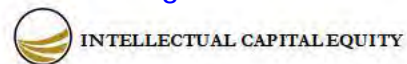
**BIO-RAD LABORATORIES, INC. AND
PRESIDENT AND FELLOWS OF HARVARD COLLEGE**

V.

10X GENOMICS, INC.

EXPERT REPORT OF JAMES E. MALACKOWSKI

February 5, 2021



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1. BACKGROUND AND QUALIFICATIONS

My name is James E. Malackowski and I am the Co-Founder and Chief Executive Officer of Ocean Tomo, LLC, the Intellectual Capital Merchant Banc™ firm providing industry leading financial products and services related to intellectual property including financial expert testimony, valuation, strategy consulting, patent analytics, investment management, and transaction brokerage. Ocean Tomo assists clients – corporations, law firms, governments and institutional investors – in realizing Intellectual Capital Equity® value broadly defined. Subsidiaries of Ocean Tomo include Ocean Tomo Investments Group, LLC, a registered broker dealer, and Ocean Tomo International (HK) Ltd.

I am a founding and continuous member of the IP Hall of Fame Academy. I have been recognized annually since 2007 by leading industry publications as one of the “World’s Leading IP Strategists.” Significantly, I have been listed among “50 Under 45” by IP Law & Business™; included in the National Law Journal’s inaugural list of 50 Intellectual Property Trailblazers & Pioneers; and named as one of “The Most Influential People in IP” by Managing Intellectual Property™. I was named as 1 of 50 individuals, companies and institutions that framed the first 50 issues of IAM Magazine as well as 1 of 60 leading global Economics Expert Witnesses by the same publication in 2014. In 2011 I was selected by the World Economic Forum as one of less than twenty members of the Network of Global Agenda Councils to focus on questions of IP policy. In 2013, I was inducted into the Chicago Area Entrepreneurship Hall of Fame by the Institute for Entrepreneurial Studies at the University of Illinois at Chicago College of Business Administration. In 2018, I joined the Standards Development Organization Board of the Licensing Executives Society (USA & Canada), Inc. governing voluntary consensus-based professional practices that are guided in their development by the American National Standards Institute’s (ANSI’s) Essential Requirements. LES standards are designed to encourage and teach consensus practices in many of the business process aspects of intellectual capital management.

On more than fifty occasions, I have served as an expert in U.S. Federal Court, U.S. Bankruptcy Court, State Court, the Ontario Superior Court of Justice, and global arbitrations on questions relating to intellectual property economics, including the subject of valuation, reasonable royalty, lost profits, price erosion, commercial success, corrective advertising, creditor allocations, Hatch-Waxman Act market exclusivity, business significance of licensing terms including RAND obligations, venture financing, and equities of a potential injunction. My experience extends to matters of general business valuation and commercial disputes, both domestic and foreign. I have publicly addressed policy issues affecting international trade and have provided expert opinions concerning antidumping and countervailing duties imposed by the U.S. Department of Commerce as well as testimony on domestic industry, bond, and remedies before the International Trade Commission.

I have substantial experience as a Board Director for leading technology corporations and research organizations as well as companies with critical brand management issues. I am Past President of The Licensing Executives Society International, Inc. as well as its largest chapter, LES USA & Canada, Inc. Today, I focus my not-for-profit efforts with organizations leveraging science and innovation for the benefit of children, including those located in lesser developed countries. I am a Director of the Stanley Manne Children’s Research Institute and have served since 2002 as a Trustee or Director of the National Inventors Hall of Fame, Inc., an organization providing summer enrichment programs for more than 160,000 students annually.

I am a frequent speaker on emerging technology markets and related financial measures. I have addressed mass media audiences including Bloomberg Morning Call, Bloomberg Evening Market Pulse, Bloomberg Final Word, CNBC Closing Bell, CNBC On the Money, CNBC Street Signs, CNBC World Wide Exchange, CBS News Radio, and Fox Business National Television as well as other recognized news-based internet



video channels. I am a judge on behalf of the Illinois Technology Association's CityLIGHTS™ Innovation Awards program, 1st Source Faculty Commercialization Awards, and have also appeared as a judge on PBS's Everyday Edisons.

As an inventor, I have more than twenty issued U.S. patents. I am a frequent instructor for graduate studies on IP management and markets and a Summa Cum Laude graduate of the University of Notre Dame majoring in accountancy and philosophy. I am Certified/Accredited in Financial Forensics, Business Valuation, and Blockchain Fundamentals. I am a Certified Licensing Professional and a Registered Certified Public Accountant in the State of Illinois.

A detailed version of my *curriculum vitae* is attached as Appendix 1.

Ocean Tomo is presently being compensated for my work in this matter at my current billing rate of \$895. Other Ocean Tomo consultants are assisting me in this engagement and are being compensated at rates less than \$895.¹ No part of my compensation depends on the outcome of this dispute.

2. ASSIGNMENT

Ocean Tomo was retained by counsel for Bio-Rad Laboratories, Inc. ("Bio-Rad") and the President and Fellows of Harvard College ("Harvard") (collectively "Plaintiffs") in connection with this matter. Ocean Tomo was asked to analyze certain accounting, financial, marketing, and other business data in order to identify the amount of compensation that would be appropriate for Plaintiffs to receive in the event that liability is found against 10X Genomics, Inc. ("10X" or "Defendant") for infringement of one or any of the asserted claims of U.S. Patent No. 8,871,444 (the "444 Patent") or U.S. Patent No. 9,919,277 (the "277 Patent") (collectively the "Patents-in-Suit").

In order to appropriately assess damages that may be recoverable if liability is found, I have relied upon:

- Legal filings and proceedings related to the case;
- Documents produced by Plaintiffs and Defendant relating to damages, including but not limited to, financial records, sales records, license agreements, marketing documents, and promotional materials;
- The Patents-in-Suit;
- Deposition testimony of the following Plaintiffs' personnel:
 - Deposition of Jeremy Agresti, September 29, 2020, former vice president at Bio-Rad;²
 - Deposition of John Boyce, September 29, 2020, former CEO, president, and co-founder of GnuBIO;³
 - Deposition of Jason Buenrostro, Ph.D., September 29, 2020, assistant professor at Harvard University;⁴

¹ Other Ocean Tomo consultants that assisted me in this engagement include Robert Hess, Alexander Clemons, Daniel Principe, Joe Madura, and Jack Kelly.

² Deposition of Jeremy Agresti, September 29, 2020, p. 7.

³ Deposition of John Boyce, September 29, 2020, p. 12.

⁴ Deposition of Jason Buenrostro, Ph.D., September 29, 2020, p. 10.



- Deposition of Erin Chia, September 23, 2020, director of business development at Bio-Rad;⁵
- Deposition of Mark DiPanfilo, September 25, 2020, former Digital Biology Group Controller at Bio-Rad;⁶
- Deposition of Eric Ginsburg, Ph.D., October 2, 2020, Director, Market Intelligence and Commercialization Initiatives at The University of Chicago;⁷
- Deposition of John Goetz, September 18, 2020, former chief operating officer at Bio-Rad;⁸
- Deposition of Michael Hunkapiller, September 24, 2020, former CEO of Pacific Biosciences and former board member of RainDance;⁹
- Deposition of Ronald Lebofsky, Ph.D., September 16, 2020, associate director of advanced research at Bio-Rad;¹⁰
- Deposition of Darren Link, Ph.D., October 7, 2020, vice president of research and development, Digital Biology Group, at Bio-Rad;¹¹
- Deposition of John Luckey, Ph.D., September 11, 2020, former vice president of product development at RainDance;¹²
- Deposition of Carolyn Reifsnyder, September 25, 2020, director of global marketing at Bio-Rad;¹³
- Deposition of James Stark, October 5, 2020, former vice-president and Chief Accounting Officer at Bio-Rad;¹⁴
- Deposition of Erika Trauzzi, October 8, 2020, director of market strategy at Bio-Rad;¹⁵
- Deposition testimony of the following Defendant's personnel:
 - Deposition of Richard Fair, Ph.D., July 30, 2020, expert for 10X regarding claim construction;¹⁶
 - Deposition of Justin McAnear, October 7, 2020, chief financial officer at 10X;¹⁷

⁵ Deposition of Erin Chia, September 23, 2020, p. 8.

⁶ Deposition of Mark DiPanfilo, September 25, 2020, p. 9.

⁷ Deposition of Eric Ginsburg, Ph.D., October 2, 2020, pp. 21-22.

⁸ Deposition of John Goetz, September 18, 2020, p. 7.

⁹ Deposition of Michael Hunkapiller, September 24, 2020, p. 7.

¹⁰ Deposition of Ronald Lebofsky, Ph.D., September 16, 2020, p. 9.

¹¹ Deposition of Darren Link, Ph.D., October 7, 2020, p. 145.

¹² Deposition of John Luckey, Ph.D., September 11, 2020, p. 12.

¹³ Deposition of Carolyn Reifsnyder, September 25, 2020, p. 20.

¹⁴ Deposition of James Stark, October 5, 2020, p. 11.

¹⁵ Deposition of Erika Trauzzi, October 8, 2020, p. 9.

¹⁶ Deposition of Richard Fair, Ph.D., July 30, 2020, Exhibit 1 (Declaration of Richard B. Fair, Ph.D., in Support of 10X Genomics, Inc.'s Opening Claim Construction Brief, July 20, 2020, p. 1).

¹⁷ Deposition of Justin McAnear, October 7, 2020, p. 11.



- Deposition of Sam Ropp, Ph.D., October 1, 2020, senior vice president of global sales at 10X;¹⁸
- Deposition of Tobias Wheeler, Ph.D., September 24, 2020, director of microfluidics at 10X;¹⁹
- Deposition of Eric Whitaker, October 5, 2020, general counsel at 10X;²⁰
- Deposition testimony of the following third-party personnel:
 - Deposition of Andrew Jay Martin Ross, October 8, 2020, former principal at Grant Thornton;²¹
 - Deposition of Sanford Wadler, September 17, 2020, former executive vice president at Bio-Rad;²²
- Deposition testimony from *Bio-Rad Laboratories, Inc. and The University of Chicago v. 10x Genomics, Inc.*, 1:15-cv-00152 (D. Del.):
 - Deposition of Darren Link, May 2, 2017, former co-founder and former CTO at RainDance;²³
 - Deposition of Adam Lowe, Ph.D., April 19, 2017, staff scientist at 10X;²⁴
 - Deposition of Jeffrey Olson, March 29, 2017, director of genomic applications at RainDance;²⁵
 - Deposition of Jamie Osborn, April 11, 2017, vice president of finance at 10X;²⁶
 - Deposition of Dr. Viresh Patel, June 22, 2017, global marketing director at Bio-Rad;²⁷
- The Expert Report of Bruce Gale, Ph.D. Regarding Infringement of U.S. Patent Nos. 8,871,444 and 9,919,277, February 5, 2021, technical expert for Plaintiffs;
- Publicly available information.

A detailed listing of documents reviewed by Ocean Tomo in connection with this litigation to date is attached as Appendix 2.

The following report and accompanying analyses summarize my current opinions on the measure of damages adequate and appropriate to compensate Plaintiffs in the event 10X is found liable for infringement of the Patents-in-Suit. The information in this report is based on discovery to date and information that is currently available. Accordingly, my opinions described herein should be considered preliminary and subject to change

¹⁸ Deposition of Sam Ropp, Ph.D., October 1, 2020, p. 45.

¹⁹ Deposition of Tobias Wheeler, Ph.D., September 24, 2020, p. 10.

²⁰ Deposition of Eric Whitaker, October 5, 2020, p. 8.

²¹ Deposition of Andrew Jay Martin Ross, October 8, 2020, p. 12.

²² Deposition of Sanford Wadler, September 17, 2020, p. 11.

²³ Deposition of Darren Link, May 2, 2017, pp. 147.

²⁴ Deposition of Adam Lowe, Ph.D., April 19, 2017, p. 48.

²⁵ Deposition of Jeffrey Olson, March 29, 2017, p. 26.

²⁶ Deposition of Jamie Osborn, April 11, 2017, p. 9.

²⁷ Deposition of Dr. Viresh Patel, June 22, 2017, p. 78.

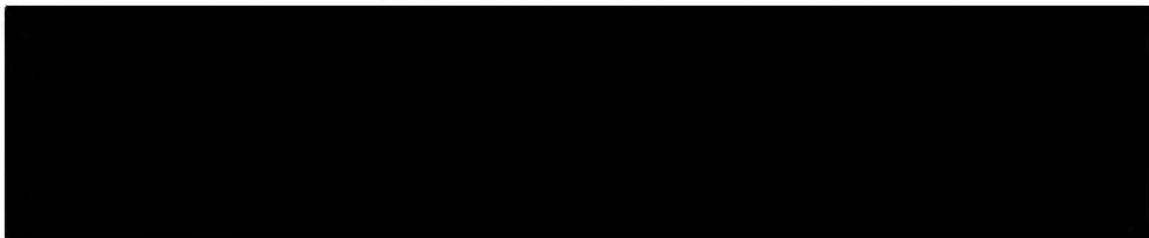


based on future discovery, the testimony of other experts, and other case developments. In addition to this report, I may rely on excerpts taken from videotaped depositions and/or demonstrative exhibits that illustrate the concepts and conclusions contained in this report.

3. SUMMARY OF OPINIONS

Based on the totality of the circumstances in this case and the information available to me at this time, I have concluded that the appropriate form and amount of compensation in this case is a reasonable royalty. I have analyzed quantitative and qualitative valuation metrics, including the *Georgia-Pacific* factors, and have determined the appropriate amount of reasonable royalty damages due to Plaintiffs for 10X's use of the Patents-in-Suit in connection with the Accused Products, as shown in the following figure.

Figure 1: Summary of Reasonable Royalty Damages²⁸



4. RELEVANT PARTIES

4.1 Bio-Rad

Founded in 1952 and headquartered in Hercules, California,²⁹ Bio-Rad “manufactures and supplies the life science research, healthcare, analytical chemistry and other markets with a broad range of products and systems used to separate complex chemical and biological materials and to identify, analyze and purify their components.”³⁰ With a mission to provide scientists with specialized tools needed for biological research and clinical diagnostics, Bio-Rad provides over 9,000 products to a diverse, worldwide client base that includes scientific research, healthcare, education and government customers.³¹ Bio-Rad operates through the following two segments:³²

- **Life Science:** encompasses the development, manufacture and marketing of products such as reagents, apparatus, and laboratory instruments used in research, biopharmaceutical production processes and food testing, with focus on segments of the life science market in proteomics, genomics, biopharmaceutical production, cell biology, and food safety.³³ I understand the life sciences group accounts for approximately 40% of the company's sales.³⁴

²⁸ Appendix 3.1.

²⁹ Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019, pp. 1, 3.

³⁰ Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 3.

³¹ Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 26.

³² Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019, pp. 3-4.

³³ Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019, pp. 3-4.

³⁴ Deposition of Mark DiPanfilo, September 25, 2020, p. 47.



- **Clinical Diagnostics:** encompasses the design, manufacture, sales, and support for the diagnostics market of products including reagents, instruments, and software, with specific niches in the in vitro diagnostics test market.³⁵ I understand the clinical diagnostics group accounts for approximately 60% of the company's sales.³⁶

On January 9, 2017, Bio-Rad and Illumina, Inc. ("Illumina") announced the launch of the Illumina Bio-Rad Single-Cell Sequencing Solution, which encompassed the ddSEQ Single-Cell Isolator and SureCell WTA 3' Library Prep Kit.³⁷ This platform is an end-to-end single-cell sequencing solution that can process hundreds to tens of thousands of cells per day.³⁸

In February 2017, Bio-Rad acquired RainDance Technologies, Inc. ("RainDance"), which now operates under Bio-Rad's Life Science segment.³⁹ Founded in 2004 and based in Billerica, Massachusetts,⁴⁰ RainDance provided major research institutions and laboratories worldwide with "ultra-sensitive genomic tools" based on microfluidic droplet technology.⁴¹ These tools enabled researchers to explore a wide range of phenomena, including identifying whether the samples contain cancer, viruses, pathogens, and other markers released by the immune system, on a tiny scale using droplets as miniature bioreactors.⁴² RainDance's primary products pertained to preparing DNA samples for targeted DNA sequencing and conducting DNA amplification reactions in microfluidic droplets.⁴³ Among other things, RainDance's products facilitate the research of non-invasive liquid biopsy applications for early detection of cancer and other inherited and infectious diseases.⁴⁴

RainDance not only "pioneered the development and application of droplet microfluidic technology for biological applications, and in the process built a substantial and foundational patent portfolio in the field,"⁴⁵

³⁵ Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019, pp. 3-4.

³⁶ Deposition of Mark DiPanfilo, September 25, 2020, p. 47.

³⁷ "Illumina and Bio-Rad Launch Solution for Single-Cell Genomic Sequencing to Enable Robust Study of Complex Diseases," *Business Wire*, January 9, 2017, <https://www.businesswire.com/news/home/20170109006365/en/Illumina-and-Bio-Rad-Launch-Solution-for-Single-Cell-Genomic-Sequencing-to-Enable-Robust-Study-of-Complex-Diseases>.

³⁸ "ddSEQ Single-Cell Isolator," *Bio-Rad*, <https://www.bio-rad.com/en-us/product/ddseq-single-cell-isolator?ID=OKNWBSE8Z>.

³⁹ Bio-Rad Laboratories, Inc. SEC Form 10-Q for the quarter ended March 31, 2017, p. 11.

⁴⁰ "Company Overview of RainDance Technologies, Inc.," *Bloomberg*, <https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=23315364>; Bio-Rad Laboratories, Inc. Public Company Profile, CapitalIQ.

⁴¹ "Pacific Biosciences and RainDance Technologies Partner to Co-Develop and Commercialize Novel Solution For de novo Whole Genome Assembly," *Global Newswire*, May 5, 2015, <https://www.globenewswire.com/news-release/2015/05/05/732360/10132773/en/Pacific-Biosciences-and-RainDance-Technologies-Partner-to-Co-Develop-and-Commercialize-Novel-Solution-For-de-novo-Whole-Genome-Assembly.html>.

⁴² "Testing the Water: RainDance is Stalking Cancer Drop by Drop," *GE*, March 3, 2014, <https://www.ge.com/news/reports/testing-the-water>.

⁴³ "Bio-Rad to Acquire RainDance Technologies," *Genetic Engineering & Biotechnology News*, January 16, 2017, <https://www.genengnews.com/topics/omics/bio-rad-to-acquire-raindance-technologies/>; "Company Overview of RainDance Technologies, Inc.," *Bloomberg*, <https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=23315364>.

⁴⁴ "Company," *RainDance*, <http://web.archive.org/web/20160809142630/http://raindancetech.com/about/>.

⁴⁵ "RainDance Technologies to be Sold to Bio-Rad," *RainDance*, January 16, 2017, <https://web.archive.org/web/20170407122913/http://raindancetech.com/raindance-technologies-to-be-sold-to-bio-rad/>.



but was also recognized as a 2008 World Economic Forum Technology Pioneer.⁴⁶ Recognition by the World Economic Forum as a Technology Pioneer required RainDance to meet the following criteria: (1) involvement in developing life-changing technology innovation; (2) potential for long-term impact on business and society; (3) demonstrated visionary leadership and the capacity to become a long-standing market leader; and (4) proven technology.⁴⁷

4.2 Harvard and Medical Research Council

I understand that Dr. Darren R. Link, Vice President of R&D at Digital Biology Group of Bio-Rad and one of the named inventors of the Patents-in-Suit,⁴⁸ began working at Harvard with Dr. David A. Weitz in 2001.⁴⁹ Dr. Weitz is a Mallinckrodt Professor of Physics and of Applied Physics at Harvard.⁵⁰ Dr. Weitz's laboratory currently focuses on three major themes: colloid physics, biophysics, and microfluidics.⁵¹ The microfluidics effort has two areas of focus, microfluidics for material production and microfluidics for biology.⁵² Dr. Weitz's laboratory develops microfluidic devices to very precisely control small drops of one fluid in a second carrier fluid.⁵³ According to Dr. Link, around the time he joined Dr. Weitz's laboratory, he was working on manipulating droplets with electrical fields, controlling which direction droplets move, understanding critical fields that are required to break droplets in half, and how to overcome the stabilization of a surfactant to merge droplets.⁵⁴

I understand that Dr. Link and Dr. Weitz collaborated with Dr. Andrew David Griffiths, Dr. Jerome Bibette, and Dr. Keunho Ahn in the research that lead to the Patents-in-Suit.⁵⁵ According to Dr. Link, Dr. Ahn also worked at Harvard in the Weitz laboratory during the time the claims of the '444 Patent were being written.⁵⁶ I understand that Dr. Bibette worked for ESPCI Paris which is a an institution of higher education located in France.⁵⁷ According to Dr. Link, Dr. Bibette was a longstanding collaborator of the Weitz Lab and was a proponent of working with Dr. Griffiths, who worked at the Medical Research Council ("MRC").⁵⁸ I understand that MRC is a part of UK Research and Innovation, which "works in partnership with

⁴⁶ "RainDance Technologies Selected as a World Economic Forum Technology Pioneer," *RainDance*, November 29, 2007, <https://web.archive.org/web/20170501054717/http://raindancetech.com/raindance-technologies-selected-as-a-world-economic-forum-technology-pioneer/>.

⁴⁷ "RainDance Technologies Selected as a World Economic Forum Technology Pioneer," *RainDance*, November 29, 2007, <https://web.archive.org/web/20170501054717/http://raindancetech.com/raindance-technologies-selected-as-a-world-economic-forum-technology-pioneer/>.

⁴⁸ Deposition of Darren R. Link, Ph.D., October 7, 2020, p. 145; U.S. Patent No. 8,871,444, p. 1; and U.S. Patent No. 9,919,277, p. 1.

⁴⁹ Deposition of Darren R. Link, Ph.D., October 7, 2020, p. 23.

⁵⁰ "David A. Weitz," *Harvard University*, <https://www.physics.harvard.edu/people/facpages/weitz>.

⁵¹ "David A. Weitz," *Harvard University*, <https://www.physics.harvard.edu/people/facpages/weitz>.

⁵² "Microfluidics," *Harvard University*, <https://weitzlab.seas.harvard.edu/research/microfluidics>.

⁵³ "Microfluidics," *Harvard University*, <https://weitzlab.seas.harvard.edu/research/microfluidics>.

⁵⁴ Deposition of Darren R. Link, Ph.D., October 7, 2020, p. 24.

⁵⁵ Deposition of Darren R. Link, Ph.D., October 7, 2020, p. 32-38.

⁵⁶ Deposition of Darren R. Link, Ph.D., October 7, 2020, pp 35-36.

⁵⁷ Deposition of Darren R. Link, Ph.D., October 7, 2020, p. 35 and "Organization," *ESPCI Paris*, <https://www.espci.psl.eu/en/espci-paris-psl/organization/>.

⁵⁸ Deposition of Darren R. Link, Ph.D., October 7, 2020, pp. 35-36.



universities, research organizations, businesses, charities, and government to create the best possible environment for research and innovation to flourish.”⁵⁹

4.3 10X

10X was founded on July 2, 2012, as Avante Biosystems, Inc., changed its name to 10X Technologies, Inc., in September 2012, and changed its name to 10X Genomics, Inc., in November 2014.⁶⁰ Headquartered in Pleasanton, California,⁶¹ 10X is “a life science technology company building products to interrogate, understand and master biology.”⁶² 10X’s integrated solutions include “instruments, consumables and software for analyzing biological systems at a resolution and scale that matches the complexity of biology.”⁶³ The company “develops integrated systems and solutions for genome sequencing, exome sequencing, and single cell transcriptomics.”⁶⁴

⁵⁹ “About Us,” *Medical Research Council*, <https://mrc.ukri.org/about/>; “About Us,” *UK Research and Innovation*, <https://www.ukri.org/about-us/>.

⁶⁰ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 26; “Investor FAQs,” 10X, <https://investors.10xgenomics.com/investor-resources/investor-faqs>.

⁶¹ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 26.

⁶² 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 2.

⁶³ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 2; Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 889).

⁶⁴ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 26.

Figure 2: 10X Product Timeline⁶⁵

The 10X product portfolio consists of solutions that guide customers through the workflow from sample preparation, to sequencing on third-party sequencers that are commonly available in research settings, to subsequent analysis and visualization.⁶⁶ Their solutions include:⁶⁷

- 10X's single cell solutions, all of which run on their Chromium instruments:
 - Single Cell Gene Expression for measuring gene activity on a cell-by-cell basis;
 - Single Cell Immune Profiling for measuring the activity of immune cells and their targets;
 - Single Cell ATAC for measuring epigenetics, including the physical organization of DNA; and
 - Single Cell CNV for measuring cellular heterogeneity through DNA changes such as copy number variation.
- 10X's Visium Spatial Gene Expression solution measures the spatial gene expression patterns across a tissue sample.

⁶⁵ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 890).

⁶⁶ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 3.

⁶⁷ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 3.

Figure 3: 10X Products⁶⁸

I understand that generally 10X develops products based on its own internal R&D.⁶⁹ However, “[t]he two major early-stage technology acquisitions that 10X has done in the past are Epinomics, which developed into [10X’s] ATAC-Seq product, and then Spatial Transcriptomics, which developed into Visium.”⁷⁰

5. PATENTS-IN-SUIT

5.1 Summary of the ‘444 Patent and ‘277 Patent

This case relates to the alleged infringement by 10X of the ‘444 Patent and the ‘277 Patent, both entitled “In vitro evolution in microfluidic systems.”⁷¹

The ‘444 Patent was issued on October 28, 2014, and assigned to MRC and Harvard.⁷² The abstract of the ‘444 Patent reads as follows:⁷³

The invention describes a method for isolating one or more genetic elements encoding a gene product having a desired activity, comprising the steps of: (a) compartmentalizing genetic elements into microcapsules; and (b) sorting the genetic elements which express the gene product having the desired activity; wherein at least one step is under microfluidic control. The invention enables the in vitro evolution of nucleic acids and proteins by repeated mutagenesis and iterative applications of the method of the invention.

The ‘444 Patent was filed on December 4, 2012, and is a continuation of U.S. Patent Application No. 11/665,030, filed as PCT Application No. PCT/GB2005/003889, which is a continuation of U.S. Patent

⁶⁸ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 3.

⁶⁹ Deposition of Justin McAnear, October 7, 2020, p. 69.

⁷⁰ Deposition of Justin McAnear, October 7, 2020, pp. 90-91.

⁷¹ U.S. Patent No. 8,871,444; U.S. Patent No. 9,919,277.

⁷² U.S. Patent No. 8,871,444, p. 1.

⁷³ U.S. Patent No. 8,871,444, p. 1.



Application No. 10/961,695, now U.S. Patent No. 7,968,287.⁷⁴ The '444 Patent expires on or around October 8, 2024.⁷⁵

The '277 Patent was issued on March 20, 2018, and assigned to MRC and Harvard.⁷⁶ The abstract of the '277 Patent reads the same as the '444 Patent abstract.⁷⁷ The '277 Patent was filed on May 5, 2017, and is a continuation of U.S. Patent Application No. 15/587,026, which is a continuation of U.S. Patent Application No. 15/012,209, which is a continuation of U.S. Patent Application No. 13/705,833, which is a continuation of U.S. Patent Application No. 11/665,030, filed as PCT Application No. PCT/GB2005/003889, which is a continuation of U.S. Patent Application No. 10/961,695, now U.S. Patent No. 7,968,287.⁷⁸ The '277 Patent expires on or around October 8, 2024.⁷⁹

On July 2, 2018, MRC assigned its interest in both the '444 Patent and the '277 Patent to United Kingdom Research and Innovation ("UKRI").⁸⁰ Additionally, the PCT Application No. PCT/GB2005/003889, from which the '444 and '277 Patents would eventually issue as continuations, was part of intellectual property exclusively licensed from MRC and Harvard to RainDance as part of exclusive license agreements entered into in late 2005 and early 2006.⁸¹ I understand that Bio-Rad obtained exclusive rights to the '444 Patent and '277 Patent through its acquisition of RainDance in February 2017.⁸²

Generally, I understand the '444 Patent and the '277 Patent to be related to "novel disclosures of at least pooling droplets such that they contact each other but do fuse due to the presence of a surfactant."⁸³ Bio-Rad has stated the following in its interrogatory responses in this case:⁸⁴

The value of the contribution is crucial to performing reactions in droplets in an efficient manner. For example, without this technology, a plurality of droplets could not be thermal cycled or incubated while pooled in the same compartment. In order to carry out a reaction, therefore, additional techniques would need to be employed in which droplets are continuously circulated in a microchip, for example. This adds significant cost, time, and complexity because such chips would need to be designed with sufficient channel space to circulate droplets, the temperature would need to be controlled within the chip, and a fewer number of droplets could undergo a reaction at once due to the more limited space.

⁷⁴ U.S. Patent No. 8,871,444, p. 1.

⁷⁵ Calculated as 20 years after the filing date of U.S. Application No. 10/961,695. See, U.S. Patent No. 8,871,444, p. 1.

⁷⁶ U.S. Patent No. 9,919,277, p. 1.

⁷⁷ U.S. Patent No. 9,919,277, p. 1.

⁷⁸ U.S. Patent No. 9,919,277, p. 1.

⁷⁹ Calculated as 20 years after the filing date of U.S. Application No. 10/961,695. See, U.S. Patent No. 9,919,277, p. 1.

⁸⁰ "Public Patent Application Information Retrieval – U.S. Patent No. 8,871,444," USPTO Public PAIR, <https://portal.uspto.gov/pair/PublicPair>; "Public Patent Application Information Retrieval – U.S. Patent No. 9,919,277," USPTO Public PAIR, <https://portal.uspto.gov/pair/PublicPair>.

⁸¹ RDTX00023699-719 at 699, 704, and 718; RDTX00023614-653 at 615, 623, and 651.

⁸² Bio-Rad Laboratories, Inc. SEC Form 10-Q for the quarter ended March 31, 2017, p. 11.

⁸³ Bio-Rad Laboratories, Inc.'s Second Supplemental Responses and Objections to 10X Genomics, Inc.'s Second Set of Interrogatories (Nos. 6-8), October 1, 2020, p. 14.

⁸⁴ Bio-Rad Laboratories, Inc.'s Second Supplemental Responses and Objections to 10X Genomics, Inc.'s Second Set of Interrogatories (Nos. 6-8), October 1, 2020, p. 14.



5.2 Asserted Claims

I understand that Bio-Rad contends 10X directly and/or indirectly infringes claims 1, 2, 4, 8, and 9 of the '444 Patent, and claims 1-6, 8, 9, 11, 13, and 14 of the '277 Patent, which claims are provided below:⁸⁵

'444 Patent – Claims 1, 2, 4, 8, and 9

1. *A method for detecting a product of an enzymatic reaction, comprising the steps of:
providing a droplet generator to produce, under microfluidic control, a plurality of aqueous microcapsules surrounded by an immiscible continuous phase that comprises a fluorinated oil that comprises a fluorinated polymer surfactant, each of the plurality of microcapsules comprising an enzyme, a genetic element, and reagents for the enzymatic reaction;
pooling the microcapsules into one or more common compartments such that a portion of the plurality of microcapsules contact each other but do not fuse with each other due to the presence of the surfactant;
conducting the enzymatic reaction on the genetic element of at least one of the plurality of microcapsules within the one or more common compartments; and
detecting the product of the enzymatic reaction.*
2. *The method of claim 1, wherein the genetic elements are nucleic acids, proteins, or cells.*
4. *The method of claim 1, wherein the genetic elements are labeled.*
8. *The method of claim 1, wherein the microcapsules are monodisperse with respect to each other.*
9. *The method of claim 1, wherein the droplet generator further comprises an aqueous fluid channel and two immiscible continuous phase channels and producing the plurality of microcapsules surrounded by the immiscible continuous phase under the microfluidic control comprises partitioning an aqueous fluid that is flowing through the aqueous fluid channel with two counter propagating streams of the immiscible continuous phase that are flowing through the immiscible continuous phase channels.*

'277 Patent – Claims 1-6, 8, 9, 11, 13, and 14

1. *A method for conducting an enzymatic reaction, comprising, the steps of:
providing a droplet generator to produce, under microfluidic control, a plurality of aqueous microcapsules surrounded by an immiscible continuous phase that comprises a fluorinated oil that comprises a fluorinated polymer surfactant, each of the plurality of microcapsules comprising an enzyme, a genetic element linked covalently or non-covalently to a bead, and reagents for the enzymatic reaction;
pooling the microcapsules into one or more common compartments such that a portion of the plurality of microcapsules contact each other but do not fuse with each other due to the presence of the surfactant; and
conducting the enzymatic reaction on the genetic element of at least one of the plurality of microcapsules within the one or more common compartments.*
2. *The method of claim 1, wherein the genetic element comprises nucleic acids.*
3. *The method of claim 2, wherein the nucleic acids further comprise primers for a polymerase chain reaction (PCR).*
4. *The method of claim 2, wherein the genetic element comprises RNA.*
5. *The method of claim 1, wherein the genetic element is labeled.*
6. *The method of claim 1, wherein the microcapsules are monodisperse with respect to each other.*

⁸⁵ Bio-Rad's Infringement Contentions to 10X, U.S. Patent No. 8,871,444; Bio-Rad's Infringement Contentions to 10X, U.S. Patent No. 9,919,277; U.S. Patent No. 8,871,444, c. 71:58-72:67, c. 73:3-4, and c. 73:11-21; U.S. Patent No. 9,919,277, c. 73:41-74:41, c. 74:50-54, c. 74:58-59, and c. 74:62-66.



8. *The method of claim 1, wherein the concentration of the beads is adjusted such that a single bead appears in each microcapsule.*
9. *The method of claim 1, wherein the genetic element is identified with a tag.*
11. *The method of claim 1, wherein the enzymatic reaction is an amplification reaction.*
13. *The method of claim 1, wherein the microcapsules are produced by infusing an aqueous fluid through a narrow constriction into a counter-propagating oil stream.*
14. *The method of claim 1, wherein the enzymatic reaction is a reverse transcription reaction.*

6. INDUSTRY BACKGROUND

6.1 Microfluidics

Microfluidics has been described by one researcher as the “science and technology of systems that process or manipulate small (10^{-9} to 10^{-18} litres) amounts of fluids, using channels with dimensions of tens to hundreds of micrometres.”⁸⁶ I understand that “[m]icrofluidics deals with the transport of fluids through networks of channels, typically having micrometer dimensions. Microfluidic systems (sometimes called labs-on-a-chip) find applications in microscale chemical and biological analysis (micro-total-analysis systems).”⁸⁷ I further understand that the “main advantages of microfluidic systems are high speed and low consumption of reagents”, which make them “very promising for medical diagnostics and high-throughput screening.”⁸⁸

Microfluidics has many applications including, but not limited to:⁸⁹

- **Pharmaceutical and Life Science Research:** includes devices for genomics, drug discovery and screening, proteomics, and cell analysis;
- **Clinical and Veterinary Diagnostics:** laboratory equipment;
- **Point-of-Care Diagnostics:** out-of-the-lab diagnostic equipment for near-patient testing, intensive care, doctor’s offices, and home testing; and
- **Industrial, Environmental, and Agro-Food Testing:** tests for quality/process control and for testing water for substances such as pesticides or bacteria.

6.2 Single-Cell Genomics

Single-cell genomics “aims to provide a new understanding of genetics and transcriptomics at the single-cell level and opens new opportunities to better understand biological processes and how they contribute to disease. This approach allows identification of the complexity of cell diversity in a sample without the loss of information that occurs when multicellular or bulk tissue samples are analyzed.”⁹⁰ Understanding individual

⁸⁶ George M. Whitesides, “The Origins and the Future of Microfluidics,” *Nature*, July 2006, Vol. 442, p. 368.

⁸⁷ U.S. Patent No. 9,968,933, 1:27-32.

⁸⁸ U.S. Patent No. 9,968,933, 1:32-35.

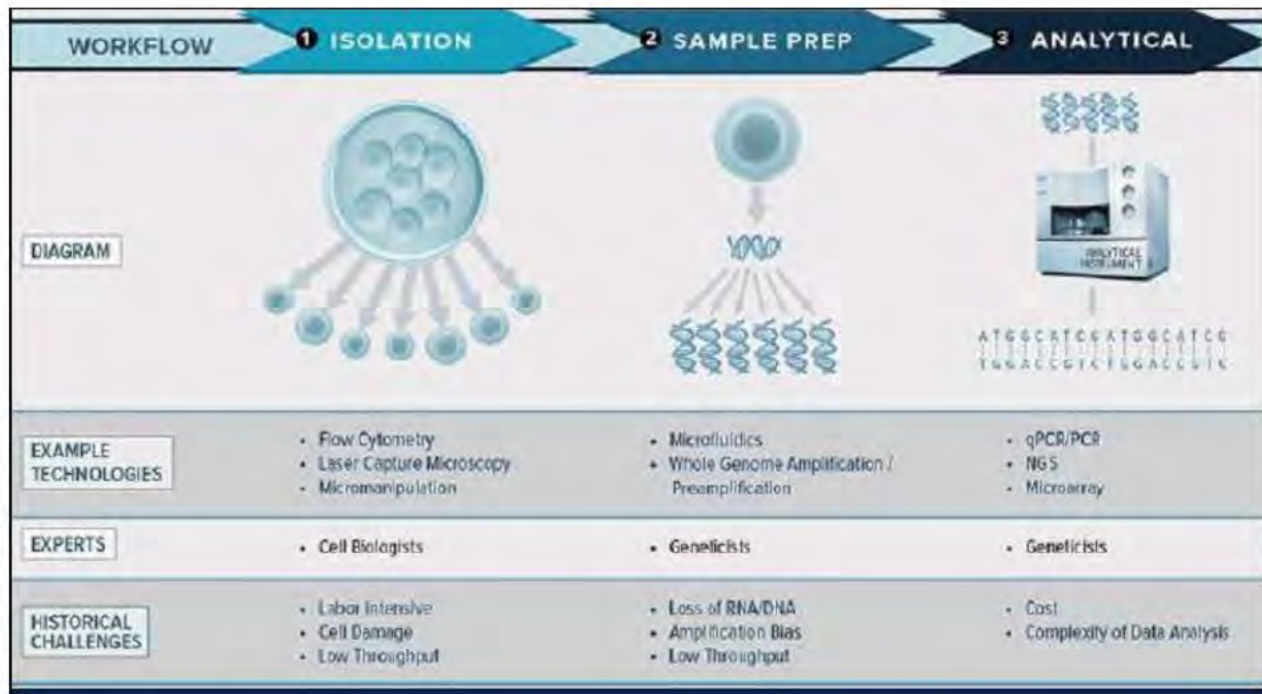
⁸⁹ “Status of the Microfluidics Industry, 2017 Report - Sample” *Yole Développement*, May 2017, p. 9, https://www.slideshare.net/Yole_Developpement/status-of-the-microfluidics-industry-2017-report-by-yole-developpement.

⁹⁰ “Single-Cell Genomics,” *American Association for Clinical Chemistry*, August 1, 2019, <https://academic.oup.com/clinchem/article/65/8/972/5608497>.



cellular differences helps reveal novel insights into disease etiology and enables new approaches to manage disease.⁹¹

Figure 4: Single Cell Genomics Workflow Steps⁹²



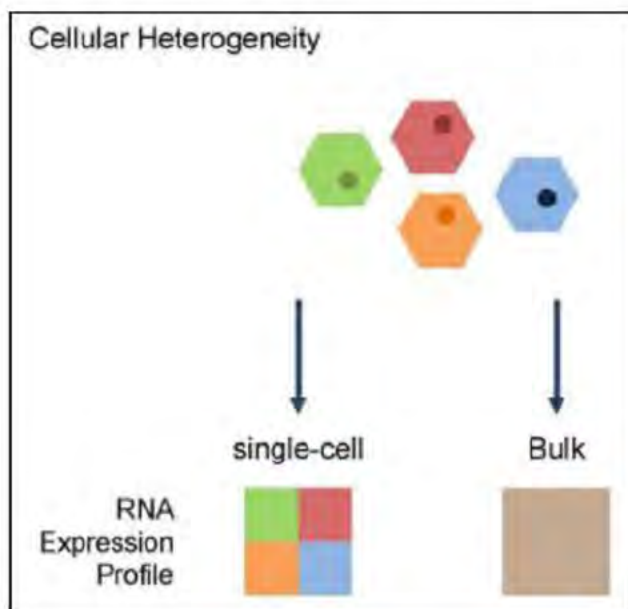
When the RNA expression of a group of cells is measured together (in bulk), the result is an expression profile representing the average of all the cells as opposed to the true expression profile of each individual cell. In many instances, that distinction can be critical.⁹³ I understand that “[i]n fields such as hematology, stem cell biology, tissue engineering, and cancer biology, the cells of interest may be in the minority and their true behavior or phenotype masked by the majority of the population. In cases such as these, measuring averages is insufficient. Accurate characterization of samples with high cellular heterogeneity is only achieved through single-cell analysis.”⁹⁴

⁹¹ “Single-Cell Genomics,” *American Association for Clinical Chemistry*, August 1, 2019, <https://academic.oup.com/clinchem/article/65/8/972/5608497>.

⁹² “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends,” *DeciBio Consulting, LLC*, August 2013, p. 19.

⁹³ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” *DeciBio Consulting, LLC*, April 2020, p. 11 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 507)).

⁹⁴ “Bio-Rad Laboratories – Annual Report 2016,” *Bio-Rad Laboratories*, https://www.bio-rad.com/webroot/web/pdf/corporate/annualreport/Annual_Report_2016.pdf; BIOR00009876-888 at 877.

Figure 5: Cellular Heterogeneity⁹⁵

The single-cell genomics approach has been enabling in several key therapeutic areas, including oncology/immuno-oncology, immunology, neurology, microbiology, and stem cell biology.⁹⁶ To date, RNA-sequencing has been “the dominant approach for the characterization of single-cells, but additional components of single-cells are increasingly being assessed (e.g., DNA, epigenetics, proteins) independently and more recently simultaneously (i.e., multiomics).”⁹⁷ In recent years, the market has witnessed the release of “several commercial offerings and novel applications beyond RNA-seq (e.g., ATAC-seq) and particularly multiomics (e.g., DNA + RNA, DNA + Protein).”⁹⁸

RNA sequencing (“RNA-seq”) employs next-generation sequencing to detect and quantify RNA in biological samples.⁹⁹ For the first time, single-cell RNA-seq “is enabling a cell-by-cell molecular and cellular

⁹⁵ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” *DeciBio Consulting, LLC*, April 2020, p. 11 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 507)).

⁹⁶ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” *DeciBio Consulting, LLC*, April 2020, p. 11 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 507)).

⁹⁷ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” *DeciBio Consulting, LLC*, April 2020, p. 11 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 507)).

⁹⁸ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” *DeciBio Consulting, LLC*, April 2020, p. 12 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 508)).

⁹⁹ “RNA Sequencing (RNA-Seq) Methods for NGS,” *Thermo Fisher Scientific*, <https://www.thermofisher.com/us/en/home/life-science/sequencing/sequencing-learning-center/next-generation-sequencing-information/ngs-basics/rna-sequencing-methods.html>.



characterization of hundreds of thousands of cells within the same sample. Complex systems, like those found in the immune system, can be explored without limits.”¹⁰⁰

ATAC sequencing (“ATAC-seq”) can help uncover how chromatin packaging and other factors affect gene expression. ATAC-seq “has been used to better understand chromatin accessibility, transcription factor binding, and gene regulation in complex diseases.” This approach can be performed on bulk cell populations or on single cells.¹⁰¹

Single-cell multiomics technologies can measure “multiple types of molecule from the same individual cell, enabling more profound biological insight than can be inferred by analyzing each molecular layer from separate cells.” These technologies can reveal cellular heterogeneity at multiple molecular layers within a population of cells.¹⁰² A common application of multiomics is CITE-seq, which analyzes gene expression and cell surface proteins simultaneously in single cells.¹⁰³

DeciBio estimates that the worldwide single-cell genomics market reached approximately \$600M in 2019 and is expected to grow at a CAGR of 23% to reach approximately \$1.5B in 2023.¹⁰⁴

7. THE ACCUSED PRODUCTS

I understand Plaintiffs have accused certain of 10X’s products of infringing the Patents-in-Suit (the “Accused Products”). Specifically, I understand that the Accused Products are 10X’s Next GEM products.¹⁰⁵ 10X has generated sales of the Accused Products in the U.S., starting in the second quarter of 2019.¹⁰⁶

I understand that the current iteration of 10X’s Chromium platform is “powered by Next GEM technology,” which “enables integrated analysis of single cells at massive scale.”¹⁰⁷ 10X has stated the following regarding its Chromium platform:¹⁰⁸

Our suite of Chromium Single Cell solutions can capture molecular snapshots of cell activity in multiple dimensions, including gene expression, cell surface proteins, immune clonotype, antigen specificity, and chromatin accessibility. The

¹⁰⁰ “Revolutionizing Gene Expression with Single Cell RNA-seq”, 10X Genomics, <https://www.10xgenomics.com/single-cell-technology>.

¹⁰¹ “ATAC-Seq for Chromatin Accessibility Analysis,” Illumina, <https://www.illumina.com/techniques/popular-applications/epigenetics/atac-seq-chromatin-accessibility.html>.

¹⁰² “Single-Cell (Multi)omics Technologies,” Annual Reviews, https://www.annualreviews.org/doi/full/10.1146/annurev-genom-091416-035324#_i25.

¹⁰³ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” DeciBio Consulting, LLC, April 2020, p. 30 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 526)).

¹⁰⁴ “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends (2015-2023),” DeciBio Consulting, LLC, April 2020, p. 12 (Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 508)).

¹⁰⁵ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section VI.

¹⁰⁶ Appendix 3.3; 10XMA00197979.

¹⁰⁷ “The Power of Single Cell Partitioning,” 10X Genomics, p. 1, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.

¹⁰⁸ “The Power of Single Cell Partitioning,” 10X Genomics, p. 1, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.



key to this technology is the ability to generate tens of thousands of single cell partitions, each containing an identifying barcode for downstream analysis. The Chromium Controller and Chromium Connect instruments use advanced microfluidics to perform single cell partitioning and barcoding in a matter of minutes.

10X's Next GEM platform, which was launched in the second quarter of 2019, integrates seamlessly into 10X's existing solutions and is currently offered for the Chromium Single Cell Gene Expression Solution, Chromium Single Cell Immune Profiling Solution, and the Chromium Single Cell ATAC Solution.¹⁰⁹ I understand that 10X sells all Chromium instruments with a Next GEM training kit and a Next GEM Accessory kit, which contains a Chromium Next GEM Test Chip.¹¹⁰

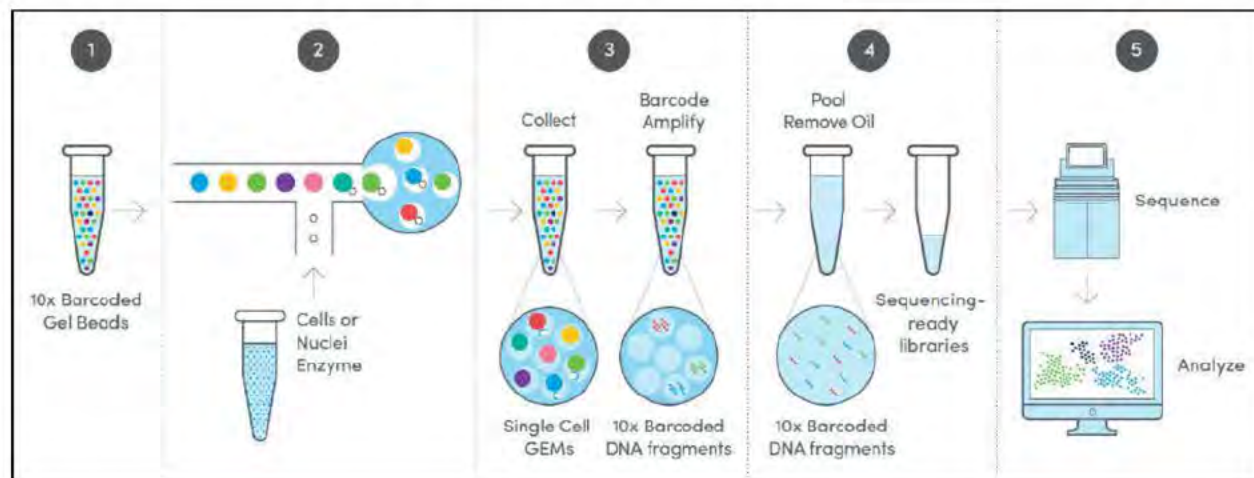
10X has described the process of its Next GEM technology and Chromium instrument as follows:¹¹¹

- 1. Every Chromium solution starts with a high diversity pool of Gel Beads, each coated with a unique oligonucleotide barcode sequence, and functionalized sequences to capture molecules of interest.*
- 2. Within the Chromium instrument, barcoded Gel Beads are mixed with cells or nuclei, enzymes, and partitioning oil to form tens of thousands of single cell emulsion droplets called "GEMs" (Gel Bead-in-emulsion).*
- 3. Each GEM acts as an individual reaction vesicle in which the Gel Beads are dissolved and molecules of interest from each cell are captured, barcoded, and amplified.*
- 4. After amplification, all fragments from the same cell share a common 10x barcode. Barcoded fragments for hundreds to tens of thousands of cells are pooled for downstream reactions to create short-read sequencer compatible libraries.*
- 5. After sequencing, turnkey bioinformatics tools use the identifying barcodes to map sequencing reads back to their single cell or nucleus of origin.*

¹⁰⁹ "Next GEM Technology," 10X Genomics, <https://www.10xgenomics.com/technology/>; Deposition of Tobias Wheeler, September 24, 2020, p. 19.

¹¹⁰ 10XMA00029138-186 at 149.

¹¹¹ "The Power of Single Cell Partitioning," 10X Genomics, p. 2, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.

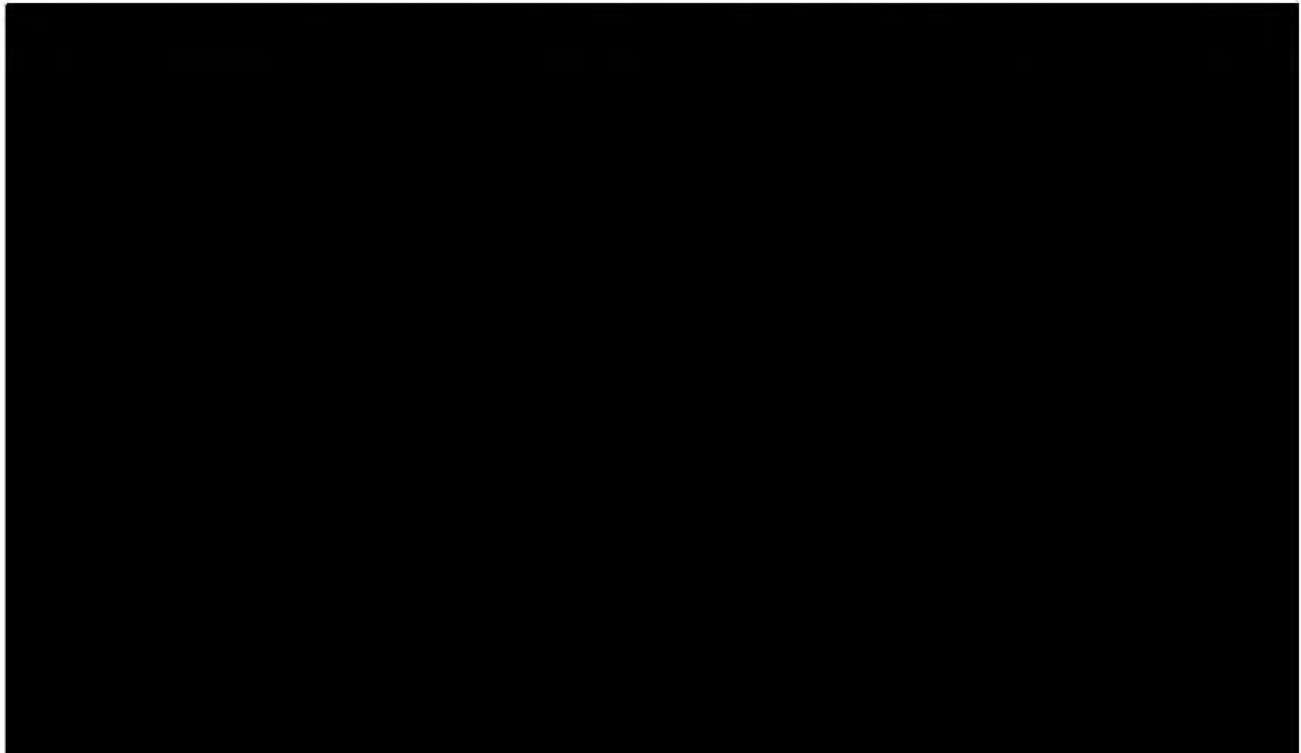
Figure 6: 10X's Next GEM Process¹¹²

The following figure illustrates some of the technical differences between the Next GEM system and 10X's prior system.

¹¹² "The Power of Single Cell Partitioning," *10X Genomics*, p. 2, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.



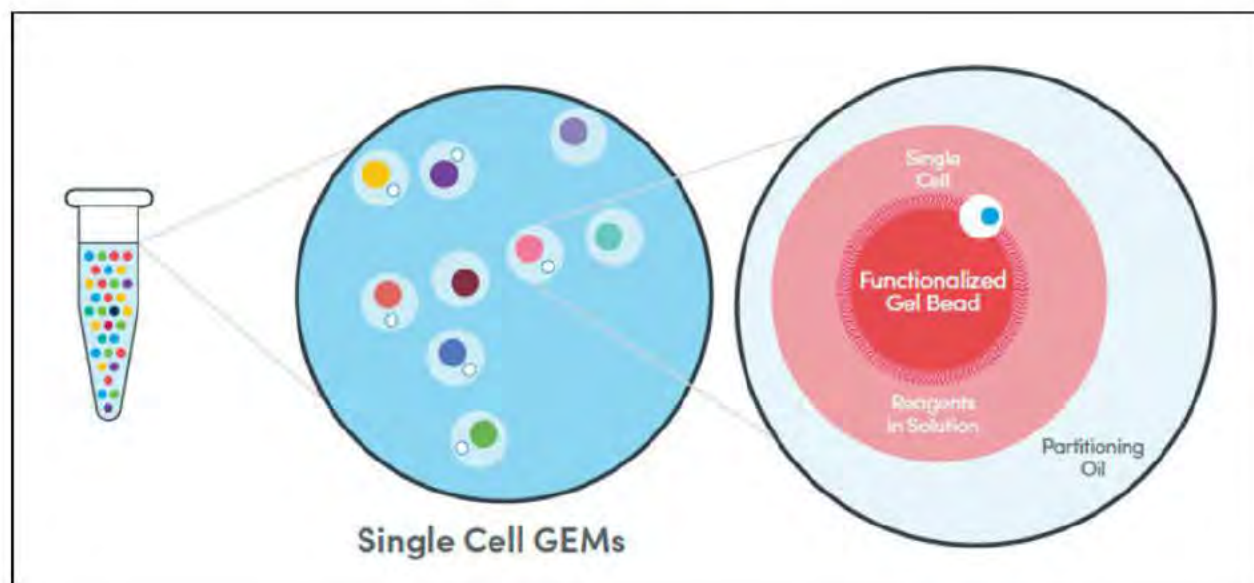
Figure 7: 10X Legacy and Next GEM Systems¹¹³



10X explains that its GEMs (or Gel Bead-in-emulsion) are droplets that encapsulate each micro-reaction within the Chromium instrument. The following figure depicts “a single cell, reagents, and barcoded Gel Bead all partitioned within a single droplet.”¹¹⁴

¹¹³ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00197878-914 at 914)

¹¹⁴ “The Power of Single Cell Partitioning,” *10X Genomics*, p. 2, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.

Figure 8: 10X's GEMs¹¹⁵

8. TIMELINE OF EVENTS

Several events related to this matter are listed below:

- 2004 RainDance is founded.¹¹⁶
- October 8, 2004 U.S. Patent Application No. 10/961,695, now U.S. Patent No. 7,968,287, is filed, from which the '444 and '277 Patents would eventually issue as continuations.¹¹⁷
- December 5, 2005 RainDance acquires an exclusive license from MRC to various intellectual property, including PCT/GB2005/003889, from which the '444 and '277 Patents would eventually issue as continuations.¹¹⁸
- February 23, 2006 RainDance acquires an exclusive license from Harvard to various intellectual property, including application number 10/961,695, from which the '444 and '277 Patents would eventually issue as continuations.¹¹⁹

¹¹⁵ "The Power of Single Cell Partitioning," *10X Genomics*, p. 2, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.

¹¹⁶ RainDance Technologies, Inc. Private Company Profile, S&P Capital IQ.

¹¹⁷ U.S. Patent No. 8,871,444, p. 1; U.S. Patent No. 9,919,277, p. 1.

¹¹⁸ RDTX00023699-719 at 699, 704, and 718.

¹¹⁹ RDTX00023614-653 at 615, 623, and 651.



- July 2, 2012 10X is founded.¹²⁰
- December 4, 2012 The '444 Patent is filed.¹²¹
- October 28, 2014 The '444 Patent issues to MRC and Harvard.¹²²
- February 25, 2015 10X launches its GemCode Platform and prepares for shipments in Q2 2015.¹²³
- February 11, 2016 10X introduces its Chromium System.¹²⁴
- January 9, 2017 Bio-Rad and Illumina launch their Single-Cell Sequencing Solution, which comprises the ddSEQ Single-Cell Isolator and SureCell WTA 3' Library Prep Kit.¹²⁵
- January 16, 2017 Bio-Rad announces its acquisition of RainDance.¹²⁶
- February 2017 Bio-Rad completes its acquisition of RainDance.¹²⁷
- May 5, 2017 The '277 Patent is filed.¹²⁸
- March 20, 2018 The '277 Patent issues to MRC and Harvard.¹²⁹
- May 2019 10X launches its Next GEM platform.¹³⁰
- Q2 2019 10X begins selling the Next GEM Accused Products.¹³¹

¹²⁰ 10X Genomics, Inc. Public Company Profile, S&P Cap IQ; "Investor FAQs," 10X, <https://investors.10xgenomics.com/investor-resources/investor-faqs>.

¹²¹ U.S. Patent No. 8,871,444, p. 1.

¹²² U.S. Patent No. 8,871,444, p. 1.

¹²³ "10x Genomics Launches GemCode Platform, Provides Long Range Information with Short Read Sequencing," 10X Genomics, February 25, 2015, <https://www.10xgenomics.com/news/10x-genomics-launches-gemcode-platform-provides-long-range-information-with-short-read-sequencing/>.

¹²⁴ "10X Genomics' New Chromium System Enables Full Access to Critical Molecular and Cellular Information," 10X Genomics, February 11, 2016, <https://www.10xgenomics.com/news/10x-genomics-new-chromium-system-enables-full-access-to-critical-molecular-and-cellular-information/>.

¹²⁵ "Illumina and Bio-Rad Launch Solution for Single-Cell Genomic Sequencing to Enable Robust Study of Complex Diseases," *Business Wire*, January 9, 2017, <https://www.businesswire.com/news/home/20170109006365/en/Illumina-and-Bio-Rad-Launch-Solution-for-Single-Cell-Genomic-Sequencing-to-Enable-Robust-Study-of-Complex-Diseases>.

¹²⁶ "Bio-Rad to Acquire RainDance Technologies and Droplet Intellectual Property," *Bio-Rad Laboratories, Inc.*, January 16, 2017, <https://web.archive.org/web/20170330003940/http://www.bio-rad.com/en-us/corporate/newsroom/bio-rad-to-acquire-raindance-technologies-and-droplet-intellectual-property>.

¹²⁷ Bio-Rad Laboratories, Inc. SEC Form 10-Q for the quarter ended March 31, 2017, p. 11.

¹²⁸ U.S. Patent No. 9,919,277, p. 1.

¹²⁹ U.S. Patent No. 9,919,277, p. 1.

¹³⁰ 10X Genomics, Inc., SEC Form 10-K for the fiscal year ended December 31, 2019, p. 84.

¹³¹ 10XMA00197979.



- October 8, 2024 The '444 and '277 Patents are expected to expire.¹³²

9. REASONABLE ROYALTY COMPENSATION

9.1 Overview

It is my understanding that in accordance with applicable statutory law, upon a finding of liability in a patent infringement action, the patentee is entitled to no less than “a reasonable royalty for the use made of the invention by the infringer[.]”¹³³

My determination of a reasonable royalty begins with the conclusion that there is no established royalty rate for the Patents-in-Suit. In general, a determination of whether there is an established royalty is based on a review of any relevant agreements produced and transactions relative to the following criteria defined in the *Sun Studs Inc. v. ATA Inc.* case:¹³⁴

- The agreements must have been entered into prior to when infringement began.
- The rate must not have been paid under threat of suit or in settlement of litigation.
- The rate must be paid for comparable rights.
- The rate must be paid by enough parties to indicate it is reasonable.

It is my opinion that there is no established royalty rate for the patented technology. Therefore, in the absence of an established royalty, I have based my determination of a reasonable royalty on a hypothetical negotiation between a willing licensee and a willing licensor around the time the alleged infringement began (the hypothetical negotiation date). The parties to the negotiation would have assumed that the Patents-in-Suit were valid and would be infringed by the prospective licensee unless he/she obtained a license. The reasonable royalty analysis focuses on the economic and bargaining positions of the plaintiff and defendant at the time of the hypothetical negotiation and the likely outcome of such negotiation given their positions.

This is consistent with the definition in the *Georgia-Pacific* case, specifically, “[t]he amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee – who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention – would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.”¹³⁵

9.2 Hypothetical vs. Real World Negotiations

Hypothetical negotiations differ from real-world negotiations in two main respects. First, in real-world negotiations, there may be doubts that the patent is valid or that the patent will be infringed by a particular product and the parties will take such doubts into consideration in setting a royalty. By contrast, in the

¹³² Calculated as 20 years after the filing date of U.S. Application No. 10/961,695. See, U.S. Patent No. 8,871,444, p. 1; U.S. Patent No. 9,919,277, p. 1.

¹³³ 35 U.S.C. § 284.

¹³⁴ *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 993 (Fed. Cir. 1989).

¹³⁵ *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).



hypothetical world, the patent-at-issue is assumed to be both valid and infringed. Second, in the real world, one side may be privy to information that the other side does not know. In the hypothetical negotiation, both parties are assumed to have an understanding of the other side's position based on the facts and circumstances that are known or knowable at or around the date of the hypothetical negotiation.

9.3 Nature of Rights Being Licensed

The hypothetical negotiation would result in a “bare” patent license to the claims-at-issue. While many real-world licenses include rights to other technologies, intellectual property, technical support, marketing assistance and/or other rights and privileges, the hypothetical license would be limited to a non-exclusive right to claims accused of infringement in the Patents-in-Suit.

9.4 Comparable License Methodology

I understand that the CAFC has approved of “a methodology that values the asserted patent based on comparable licenses.”¹³⁶ I further understand that “[s]uch a model begins with rates from comparable licenses and then ‘account[s] for differences in the technologies and economic circumstances of the contracting parties.’”¹³⁷ The CAFC has stated that “[w]here the licenses employed are sufficiently comparable, this method is typically reliable because the parties are constrained by the market’s actual valuation of the patent.”¹³⁸

Regarding the issue of apportionment, I understand that when the above described comparable license approach is used, apportionment to the smallest salable patent-practicing unit is not required.¹³⁹ Furthermore, “otherwise comparable licenses are not inadmissible solely because they express the royalty rate as a percentage of total revenues, rather than in terms of the smallest salable unit.”¹⁴⁰

In this case, as described in my analyses of the Market Approach and the *Georgia-Pacific* Factors, I have considered a comparable license methodology in determining a reasonable royalty.

9.5 Summary of Approach

In order to assess the proper reasonable royalty, I have relied upon the following generally accepted methods typically used by my peers in evaluating matters such as patent infringement cases. Notably, I have used this approach more than 100 times in similar matters:

- Determine the compensation period and accused sales
- Determine the reasonable royalty based on:

¹³⁶ *Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015), cert. denied, 136 S. Ct. 2530, 195 L. Ed. 2d 859 (2016).

¹³⁷ *Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015), cert. denied, 136 S. Ct. 2530, 195 L. Ed. 2d 859 (2016).

¹³⁸ *Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015), cert. denied, 136 S. Ct. 2530, 195 L. Ed. 2d 859 (2016).

¹³⁹ *Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015), cert. denied, 136 S. Ct. 2530, 195 L. Ed. 2d 859 (2016).

¹⁴⁰ *Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015), cert. denied, 136 S. Ct. 2530, 195 L. Ed. 2d 859 (2016).



- ✓ *Date of hypothetical negotiation*
- ✓ *Identification of the parties to the negotiation*
- ✓ *Evaluation of royalty, including*
 - Market Approach;
 - Income Approach;
 - Cost Approach;
 - *Georgia-Pacific* Factor Analysis; and
 - Bargaining position of the parties to the negotiation (*GP Factor 15*)
- Calculate the reasonable royalty compensation

10. COMPENSATION PERIOD AND ACCUSED PRODUCTS

I understand that 10X's first commercial sale of the Accused Products was in Q2 2019.¹⁴¹ As discussed above in Section 5, the '444 Patent issued on October 28, 2014,¹⁴² and the '277 Patent issued on March 20, 2018,¹⁴³ prior to the first commercial sale. Therefore, I understand that the date of first infringement is the date of the first commercial sale of the Accused Products in Q2 2019. Additionally, as the alleged infringement is ongoing, the compensation period continues through present day until the expiration of the Patents-in-Suit, on or around October 8, 2024.¹⁴⁴ Accordingly, I consider the compensation period to run from Q2 2019, through the expiration date of the Patents-in-Suit.

Figure 9: Accused Product Sales¹⁴⁵



¹⁴¹ 10XMA00197979.

¹⁴² U.S. Patent No. 8,871,444, p. 1.

¹⁴³ U.S. Patent No. 9,919,277, p. 1.

¹⁴⁴ Calculated as 20 years after the filing date of U.S. Application No. 10/961,695. *See*, U.S. Patent No. 8,871,444, p. 1; U.S. Patent No. 9,919,277, p. 1.

¹⁴⁵ Appendix 3.2.



11. TIMING AND PARTIES TO THE HYPOTHETICAL NEGOTIATION

11.1 Hypothetical Negotiation Date

The hypothetical negotiation takes place in the time leading up to the date of first infringement. I understand that 10X made its first sales of Accused Products in Q2 2019.¹⁴⁶ As discussed above in Section 5, the '444 Patent issued on October 28, 2014,¹⁴⁷ and the '277 Patent issued on March 20, 2018,¹⁴⁸ prior to the first commercial sale. Therefore, I have considered that in this case there would be a single hypothetical negotiation for the Patents-in-Suit, which would have occurred in the time leading up to Q2 2019, when 10X first began making sales of the Accused Products.

11.2 Parties to the Negotiation

Assuming the Patents-in-Suit are found valid and infringed, 10X would have required a license in order to sell the Accused Products. I understand that MRC and Harvard were the assignees of the Patents-in-Suit at the time of the hypothetical negotiation.¹⁴⁹ However, I also understand that RainDance was the exclusive licensee of the Patents-in-Suit, within the relevant field of use, with the right to grant sublicenses.¹⁵⁰ Additionally, RainDance had the sole right to institute patent infringement litigation against any third-party infringer of the Patents-in-Suit.¹⁵¹ Under the license for the Patents-in-Suit between MRC and RainDance, MRC had the right to institute patent infringement litigation for certain patents that did not include the Patents-in-Suit, while RainDance had the right to institute patent infringement litigation for other patents that did include the Patents-in-Suit.¹⁵² Under the license for the Patents-in-Suit between Harvard and RainDance, Harvard only retained the right to institute patent infringement litigation in the event that RainDance declined or failed to take action.¹⁵³

However, I understand that Bio-Rad obtained exclusive rights to the '444 Patent and '277 Patent through its acquisition of RainDance in February 2017,¹⁵⁴ prior to the Q2 2019 date of first infringement in this case. I therefore consider Bio-Rad to be the hypothetical licensor and 10X, as the alleged infringer, to be the hypothetical licensee.

However, I note that if it were to be determined that the appropriate hypothetical licensor, as a legal matter, were MRC, Harvard, and/or RainDance my reasonable royalty opinions would remain unchanged. If MRC, Harvard, and/or RainDance were the hypothetical licensor, they would seek to represent the interests of Bio-Rad in the negotiation process. I also note that granting a license to 10X would potentially be a breach of MRC and Harvard's exclusive license agreements with RainDance/Bio-Rad.

¹⁴⁶ 10XMA00197979.

¹⁴⁷ U.S. Patent No. 8,871,444, p. 1.

¹⁴⁸ U.S. Patent No. 9,919,277, p. 1.

¹⁴⁹ U.S. Patent No. 8,871,444, p. 1; U.S. Patent No. 9,919,277, p. 1.

¹⁵⁰ RDTX00023699-719 at 704; RDTX00023614-653 at 623, 625.

¹⁵¹ RDTX00023699-719 at 709-710; RDTX00023614-653 at 633-634.

¹⁵² RDTX00023699-719 at 709-710.

¹⁵³ RDTX00023614-653 at 634.

¹⁵⁴ Bio-Rad Laboratories, Inc. SEC Form 10-Q for the quarter ended March 31, 2017, p. 11.



12. EVALUATION OF ROYALTY

The determination of a reasonable royalty, in simple economic terms, involves valuing intangible asset(s) and determining what a user would pay for the use of the assets. There are a number of common ways to value intangible assets in evaluating reasonable royalty damages, including the *Market Approach*, the *Income Approach*, and the *Cost Approach*. My consideration of each of these approaches is discussed below.

12.1 The Market Approach

The Market Approach values assets based on comparable transactions between unrelated parties. As described in the well-known text, Economic Damages in Intellectual Property:¹⁵⁵

The market approach references a market with comparable transactions to determine the fair market value of an asset. The degree of reliance on comparable transactions depends on an assessment of the transactions to determine if they are sufficiently similar to provide an indication of the fair market value for the assets in question. Factors to consider include the nature of the assets being transferred, the industry and products involved, agreement terms, and other factors that may affect the agreed-on compensation. The market approach is often helpful in determining the running royalty rates in specific licensing transactions based on similar transactions in the marketplace. ... Any market approach analysis will likely require reasonable adjustments.

With the Market Approach, an examination of the terms of similar technology transfers is undertaken and inferences are drawn from those observations to identify terms that the licensor and licensee might have agreed to at the hypothetical negotiation. Accordingly, I have considered the licenses produced in this matter under the Market Approach.

A number of agreements and amendments were produced in this case, which I have reviewed. I have provided summaries of certain agreements that are particularly relevant to the Patents-in-Suit in the following sections.

12.1.1 Caliper/RainDance License

On September 3, 2009, Caliper Life Sciences, Inc. (“Caliper”) and RainDance entered into a License Agreement (the “Caliper/RainDance License”).¹⁵⁶

I understand that both Caliper and RainDance are commercial entities, rather than universities or research institutions, operating within the life sciences industry. Caliper, subsequently acquired by PerkinElmer,¹⁵⁷ “provides imaging and detection solutions. The Company markets its services to the life sciences research community, diagnostics, pharmaceutical, and biotechnology companies.”¹⁵⁸ RainDance is “a life sciences company [that] provides microdroplet-based solutions for the early detection of cancer and other diseases.”¹⁵⁹

¹⁵⁵ Slottje, Daniel, *Economic Damages in Intellectual Property*, 2006, pp. 291-293.

¹⁵⁶ RDTX00023739-820 at 739.

¹⁵⁷ “PerkinElmer to Acquire Caliper Life Sciences for Approximately \$600 Million,” *Business Wire, Inc.*, September 8, 2011, <http://www.businesswire.com/news/home/20110908005742/en/PerkinElmer-Acquire-Caliper-Life-Sciences-Approximately-600>.

¹⁵⁸ “Caliper Life Sciences, Inc.,” *Bloomberg*, <https://www.bloomberg.com/profile/company/CALP:US>.

¹⁵⁹ “RainDance Technologies,” *Crunchbase*, <https://www.crunchbase.com/organization/raindance-technologies>.



Under the Caliper/RainDance License, Caliper granted to RainDance “a non-exclusive, worldwide license under the Licensed Patents to make, have made, use, sell, offer for sale, import and export Licensed Products within the Field.”¹⁶⁰ The Licensed Patents were listed in Exhibit A to the agreement.¹⁶¹ The Field was initially defined to “mean and include immiscible fluids droplet-based microfluidics for life sciences research applications using Microfluidic Technology.”¹⁶²

As consideration, RainDance agreed to pay initial license fees comprising “a nonrefundable upfront license fee in the amount of (i) Three Hundred Thousand Dollars (\$300,000), ... and (ii) Two Hundred Thousand Dollars (\$200,000).”¹⁶³ RainDance was granted the right to pay additional fees to expand the Field to include non-research applications and diagnostic applications.¹⁶⁴ RainDance also agreed to pay a running royalty of 2% of net revenues of Licensed Products for Non-Screening Applications and a running royalty of 15% of net revenues of Licensed Products for Screening Applications.¹⁶⁵ Screening Applications were defined as “secondary screening and/or compound profiling for the purpose of medicinal compound development where such secondary screening or compound profiling is performed using a RainDance chip, reagent, or other non-instrument Licensed Product that competes directly with Caliper’s LabChip EZ Reader or Profiler Pro products to directly and demonstrably impact sales of Caliper’s LabChip EZ Reader or Profiler Pro products.”¹⁶⁶

RainDance further agreed to pay certain minimum quarterly royalties that were fully creditable against running royalties due within the same quarter.¹⁶⁷ In addition to royalties, RainDance agreed to pay various Commercial Success Milestone payments to Caliper, including 1) an IPO milestone fee of “0.25% of the aggregate valuation of RainDance” in the event of an initial public offering,¹⁶⁸ 2) a change of control milestone fee of “0.2% of the Enterprise Value of RainDance” in the event of a change of control transaction,¹⁶⁹ and 3) a market success milestone of \$500,000 in the event that RainDance achieves an aggregate net revenue in any of its fiscal years of at least \$30,000,000.¹⁷⁰

In the event that RainDance required a license to any third party patents in order to practice microfluidics technology, RainDance was permitted to deduct 50% of the amounts owing to such third party from the royalties owing to Caliper, provided that the royalties to be paid to Caliper could not be reduced to less than 50% of the amount of running royalties otherwise payable by RainDance.¹⁷¹ RainDance represented to Caliper that as of the effective date, it was not aware of any patent owned by a third party that would trigger the royalty stacking provision.¹⁷²

¹⁶⁰ RDTX00023739-820 at 742.

¹⁶¹ RDTX00023739-820 at 751-820.

¹⁶² RDTX00023739-820 at 740.

¹⁶³ RDTX00023739-820 at 742.

¹⁶⁴ RDTX00023739-820 at 740, 743.

¹⁶⁵ RDTX00023739-820 at 743.

¹⁶⁶ RDTX00023739-820 at 741.

¹⁶⁷ RDTX00023739-820 at 743.

¹⁶⁸ RDTX00023739-820 at 743.

¹⁶⁹ RDTX00023739-820 at 744.

¹⁷⁰ RDTX00023739-820 at 744.

¹⁷¹ RDTX00023739-820 at 744.

¹⁷² RDTX00023739-820 at 744.



The Caliper/RainDance License was subsequently amended on March 21, 2014.¹⁷³ The amendment expanded the field of use, included an additional license fee of \$1,950,000, included additional patent rights, and converted the license to a fully paid-up, royalty-free, non-exclusive, worldwide license.¹⁷⁴

Based on my review of the Expert Report of Dr. Bruce Gale, I understand that the patents licensed in the Caliper/RainDance License are technically comparable to the Patents-in-Suit.¹⁷⁵ Additionally, based on my review of the Expert Report of Dr. Bruce Gale, I understand that the products licensed under this agreement are technically comparable to the Accused Products in this case.¹⁷⁶

It is my opinion that the Caliper/RainDance License is economically comparable to the license that would result from the hypothetical negotiation in this case. The Caliper/RainDance License is a non-exclusive license to technically comparable patent rights entered into between two commercial entities in related fields. Additionally, the agreement specifically states that the 15% royalty applies to competing products.¹⁷⁷

Based on the analysis above, I find that the Caliper/RainDance License is indicative of a reasonable royalty rate in this case of 15% of net revenues.

12.1.2 Applied BioSystems/QuantaLife License

On December 30, 2010, Applied BioSystems, LLC (“Applied BioSystems”) and “QuantaLife, Inc. (“QuantaLife”) entered into a Patent License Agreement (the “Applied BioSystems/QuantaLife License”).¹⁷⁸

I understand that both Applied BioSystems and QuantaLife are commercial entities, rather than universities or research institutions, operating within the life sciences industry. Applied BioSystems “is a global company that provides innovative instruments and reagents to accelerate academic and clinical research.”¹⁷⁹ QuantaLife, subsequently acquired by Bio-Rad,¹⁸⁰ “develops and manufactures digital polymerase chain reaction products. [It] produces equipment for the diagnosis and treatment of inherited disorders, cancer, and infectious diseases.”¹⁸¹

Under the Applied BioSystems/QuantaLife License, Applied BioSystems granted to QuantaLife certain non-exclusive license rights under the Licensed Patents.¹⁸² The Licensed Patents were listed in Schedule 1 to the agreement.¹⁸³

¹⁷³ RDTX00023821-826 at 821.

¹⁷⁴ RDTX00023821-826 at 821-823.

¹⁷⁵ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.B.

¹⁷⁶ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.B.

¹⁷⁷ RDTX00023739-820 at 741, 743.

¹⁷⁸ BIOR00013578-640 at 578.

¹⁷⁹ “Applied Biosystems, Inc.,” *Crunchbase*, <https://www.crunchbase.com/organization/applied-biosystems>.

¹⁸⁰ “Bio-Rad Acquires QuantaLife and Digital PCR Technology,” *Bio-Rad*, October 5, 2011, https://www.bio-rad.com/en-us/corporate/newsroom/bio-rad-acquires-quantalife-digital-pcr-technology?ID=Bio-Rad-Acquires-Qua_1521570626.

¹⁸¹ “QuantaLife Inc.,” *Bloomberg*, <https://www.bloomberg.com/profile/company/8172982Z:US>.

¹⁸² BIOR00013578-640 at 588.

¹⁸³ BIOR00013578-640 at 623.



As consideration, QuantaLife agreed to pay a license issuance fee of \$100,000.¹⁸⁴ QuantaLife agreed to pay certain option fees and change of control fees, under certain circumstances.¹⁸⁵ QuantaLife also agreed to pay running royalties of 10% of net sales (or \$0.08 per unit, whichever is larger), 12% of net sales (or \$0.12 per unit, whichever is larger), or 15% of net sales (or \$0.15 per unit, whichever is larger), depending on which groups of patents covered a particular product and other conditions.¹⁸⁶ Minimum annual royalties of \$25,000, which were fully creditable against earned royalties within the same calendar year, were also included.¹⁸⁷

Based on my review of the Expert Report of Dr. Bruce Gale, I understand that the patents licensed in the Applied BioSystems/QuantaLife License are technically comparable to the Patents-in-Suit.¹⁸⁸ Additionally, based on my review of the Expert Report of Dr. Bruce Gale, I understand that the products licensed under this agreement are technically comparable to the Accused Products in this case.¹⁸⁹

It is my opinion that the Applied BioSystems/QuantaLife License is economically comparable to the license that would result from the hypothetical negotiation in this case. The Applied BioSystems/QuantaLife License is a non-exclusive license to technically comparable patent rights entered into between two commercial entities in related fields.

Based on the analysis above, I find that the Applied BioSystems/QuantaLife License is indicative of a reasonable royalty rate in this case of between 10% and 15% of net sales.

12.1.3 Applera/Bio-Rad License

On February 9, 2006, Applera Corporation (“Applera”), through its Applied Biosystems group, and Bio-Rad entered into a Real-Time Instrument Patent License Agreement (the “Applera/Bio-Rad License”).¹⁹⁰ The agreement was part of a settlement of litigation between Applera and Bio-Rad regarding U.S. Patent No. 6,814,934,¹⁹¹ titled “Instrument for monitoring nucleic acid amplification.”¹⁹² I understand that the parties had engaged in prior litigation regarding a separate portfolio of patents and had entered into an Amended and Restated Thermal Cycler Supplier Agreement.¹⁹³

I understand that both Applera and Bio-Rad are commercial entities, rather than universities or research institutions, operating within the life sciences industry. Applera, subsequently known as Applied Biosystems,¹⁹⁴ “is a global leader in the development and marketing of instrument-based systems, consumables, software, and services for academic research, the life science industry and commercial

¹⁸⁴ BIOR00013578-640 at 596.

¹⁸⁵ BIOR00013578-640 at 596.

¹⁸⁶ BIOR00013578-640 at 596-597.

¹⁸⁷ BIOR00013578-640 at 596.

¹⁸⁸ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.C.

¹⁸⁹ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.C.

¹⁹⁰ BIOR00013541-577 at 541.

¹⁹¹ BIOR00013541-577 at 541; *Applera Corp. v. Bio-Rad Laboratories, et al.*, 3:04-cv-1881 (D. Conn.).

¹⁹² U.S. Patent No. 6,814,934.

¹⁹³ BIOR00013541-577 at 541-542, 550.

¹⁹⁴ “Applera Corporation Completes Separation of its Celera Business and is Renamed Applied Biosystems Inc.,” *BioSpace*, July 1, 2008, <https://www.biospace.com/article/releases/applera-corporation-completes-separation-of-its-b-celera-b-business-and-is-renamed-applied-biosystems/>.



markets.”¹⁹⁵ Bio-Rad “manufactures and distributes life science research products, clinical diagnostics, and analytical instrumentation. Bio-Rad Laboratories products and systems separate complex chemical and biological materials, as well as identify, analyze, and purify their components.”¹⁹⁶

Under the Applera/Bio-Rad License, Applera granted to Bio-Rad “under the Real-Time Apparatus Patent Rights a personal, non-transferable, royalty-bearing, non-exclusive license in the Fields and in the Territory, to make, but not have made, to use and to import, Licensed Real-Time Thermal Cyclers, and to offer to sell, sell and distribute the same solely to end users, and solely under Licensee’s name and trademarks.”¹⁹⁷ The Real-Time Apparatus Patent Rights were defined as U.S. Patent No. 6,814,934, any patents that claim priority to the application from which U.S. Patent No. 6,814,934 is a division of, and any Canadian counterparts.¹⁹⁸

As consideration, Bio-Rad agreed to pay “a non-refundable license issuance fee of seven million dollars (\$7,000,000), not creditable against royalties” and “non-creditable, non-cancelable, non-refundable quarterly minimum royalties in the aggregate amount of ten million two hundred thousand dollars (\$10,200,000) ... payable in quarterly installments of one million seven hundred thousand dollars (\$1,700,000).”¹⁹⁹ Bio-Rad also agreed to pay a running royalty of 15% of the net sales price of each Licensed Real-Time Thermal Cycler, which running royalty would be creditable solely against the quarterly minimum royalty due for the specific quarter in which the running royalty was due, with no carry over of credits into other quarters.²⁰⁰ Regarding past sales, Bio-Rad agreed to pay a sum “of three million dollars (\$3,000,000) in back royalties.”²⁰¹

I understand that so long as the Licensee remained a licensee under the separate Amended and Restated Thermal Cycler Supplier Agreement, royalties paid under that supplier agreement for a given royalty-bearing item would be fully deductible from the running royalties due on the same item under this license.²⁰²

I note that the agreement states:²⁰³

Licensee acknowledges and agrees that the license herein reflects a Territory-wide (i.e., across all countries in the Territory) averaging of royalty obligations. In particular, rather than a higher royalty rate that is pegged to Valid Claims of licensed patents and patent application on a jurisdiction by jurisdiction basis, and also to avoid the costs and administrative burden of reporting and calculating royalties on a jurisdiction by jurisdiction basis, Licensee has voluntarily opted for the lower royalty rate reflected in this Article 3 whereby royalties are due on the Net Sales Price of products covered by Valid Claims regardless of where in the Territory such products are made, used or sold so long as the making, having made, using, selling, offering for sale or importation of such product is covered in any one jurisdiction in the Territory by at least one Valid Claim of the patents and patent applications licensed pursuant to Article 2 herein.

¹⁹⁵ “Applera Corporation Completes Separation of its Celera Business and is Renamed Applied Biosystems Inc.,” *BioSpace*, July 1, 2008, <https://www.biospace.com/article/releases/applera-corporation-completes-separation-of-its-b-celera-b-business-and-is-renamed-applied-biosystems/>.

¹⁹⁶ “Bio-Rad Laboratories, Inc.,” *Bloomberg*, <https://www.bloomberg.com/profile/company/BIO/B:US>.

¹⁹⁷ BIOR00013541-577 at 546.

¹⁹⁸ BIOR00013541-577 at 545.

¹⁹⁹ BIOR00013541-577 at 548.

²⁰⁰ BIOR00013541-577 at 549.

²⁰¹ BIOR00013541-577 at 553.

²⁰² BIOR00013541-577 at 550.

²⁰³ BIOR00013541-577 at 552-553.



The Applera/Bio-Rad License was subsequently amended in 2007,²⁰⁴ and again in 2008.²⁰⁵ The 2007 amendment added a certain European patent to the licensed patent rights, increased the running royalty to 15.75% and included an additional license issuance fee of \$5,000,000, among other provisions.²⁰⁶ The 2008 amendment expanded the field of use, among other provisions.²⁰⁷

I note that the Applera/Bio-Rad License was entered into as part of a settlement of litigation.²⁰⁸ The CAFC has stated that licenses entered into as part of a settlement involving “patented technology can be probative of the technology’s value if that value was at issue in the earlier case.”²⁰⁹ The CAFC explained that “such a settlement can reflect the assessment by interested and adversarial parties of the range of plausible litigation outcomes on that very issue of valuation. And given the necessary premise that discovery and adversarial processes tend to move a legal inquiry toward improved answers, the parties’ agreement seems especially probative if reached after the litigation was far enough along that the issue was already well explored and well tested.”²¹⁰ Regarding the Applera/Bio-Rad License, I understand that it was entered into after the close of discovery in the underlying case.²¹¹ Thus, based on the CAFC’s guidance, the Applera/Bio-Rad License should be generally “probative of the technology’s value,” as the underlying case had proceeded through discovery and the technology value issues had likely been “well explored and well tested.”²¹²

The CAFC went on to state that “even if the technology is identical in the earlier and later suits, the earlier suit’s settlement figure may be too low to the extent that it was lowered by the patent owner’s discounting of value by a probability of losing on validity or infringement. As the unchallenged jury instructions in this case indicate, the hypothetical-negotiation rubric for the assessment of royalty damages assumes that the asserted patents are valid and infringed.”²¹³ Regarding the Applera/Bio-Rad License, I understand that it was entered into before a judicial determination was made as to validity and infringement.²¹⁴ Thus, based on the CAFC’s guidance, the royalty rate of 15% “may be too low to the extent that it was lowered by the patent owner’s discounting of value by a probability of losing on validity or infringement,” whereas in the context of the hypothetical negotiation the Patents-in-Suit are assumed to be valid and infringed.²¹⁵

I understand that Sanford Wadler, former general counsel, secretary, and executive vice president of Bio-Rad, and a current shareholder, alleged in his deposition testimony that Bio-Rad may have engaged in various schemes in an attempt to avoid making full royalty payments under this license.²¹⁶ Mr. Wadler was asked

²⁰⁴ BIOR00013533-540 at 533.

²⁰⁵ BIOR00013527-532 at 527.

²⁰⁶ BIOR00013533-540 at 533-535.

²⁰⁷ BIOR00013527-532 at 527.

²⁰⁸ BIOR00013541-577 at 541; *Applera Corp. v. Bio-Rad Laboratories, et al.*, 3:04-cv-1881 (D. Conn.).

²⁰⁹ *Prism Technologies LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1369 (Fed. Cir. 2017).

²¹⁰ *Prism Technologies LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1369 (Fed. Cir. 2017).

²¹¹ *Applera Corp. v. Bio-Rad Laboratories, et al.*, 3:04-cv-1881 (D. Conn.). The docket report for this case indicates that discovery was due by January 11, 2006, with trial scheduled for October 2006.

²¹² *Prism Technologies LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1369 (Fed. Cir. 2017).

²¹³ *Prism Technologies LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1369 (Fed. Cir. 2017).

²¹⁴ *Applera Corp. v. Bio-Rad Laboratories, et al.*, 3:04-cv-1881 (D. Conn.). The docket report for this case indicates that discovery was due by January 11, 2006, with trial scheduled for October 2006.

²¹⁵ *Prism Technologies LLC v. Sprint Spectrum L.P.*, 849 F.3d 1360, 1369 (Fed. Cir. 2017).

²¹⁶ Deposition of Sanford Wadler, September 17, 2020, pp. 10-11, 18.



whether he had “obtained suspicious documents from China that showed that there was a bribery scheme going on relating to” the Applera/Bio-Rad License.²¹⁷ Mr. Wadler responded:²¹⁸

I don't know if it was related to the [Applera/Bio-Rad License] per se. It was related to trying to avoid to make any royalty payments on the license. It was a money-saving scheme that was going on. The [Applera/Bio-Rad License] had a very high royalty, I think around 15 percent. ... [A]ll the goods we were using for bribes wouldn't have been reported unless you got these documents. So you wouldn't be paying any royalties on those.

I understand that Applied BioSystems audited Bio-Rad under the license.²¹⁹ I also understand that Mr. Wadler was the lead negotiator of the Applera/Bio-Rad License on behalf of Bio-Rad.²²⁰ I further understand that while negotiating the Applera/Bio-Rad License, Bio-Rad was facing an injunction.²²¹ [REDACTED]

While I have considered Mr. Wadler's testimony, I have not completely discounted the probative value of the Applera/Bio-Rad License for at least the following reasons. First, Bio-Rad's alleged bribery scheme relates to Bio-Rad's conduct after the signing of the agreement, not to the reasonableness of the terms of the agreement itself, which Mr. Wadler himself negotiated. Second, although negotiating a license in the face of an injunction is less favorable to a licensee than negotiating a license when validity and infringement of the relevant patents is disputed, I note that (similar to the case of an injunction) the hypothetical negotiation assumes that the Patents-in-Suit are both valid and infringed and that the licensee requires a license. Third, [REDACTED], which is relevant to the hypothetical negotiation in this case, also between competitors.

Based on my review of the Expert Report of Dr. Bruce Gale, I understand that the patents licensed in the Applera/Bio-Rad License are technically comparable to the Patents-in-Suit.²²³ Additionally, based on my review of the Expert Report of Dr. Bruce Gale, I understand that the products licensed under this agreement are technically comparable to the Accused Products in this case.²²⁴

It is my opinion that the Applera/Bio-Rad License is economically comparable to the license that would result from the hypothetical negotiation in this case. The Applera/Bio-Rad License is a non-exclusive license to technically comparable patent rights entered into between two commercial entities in related fields. Additionally, the language in the agreement regarding a territory-wide averaging of rates suggests that the 15% royalty rate is lower than a royalty specific to the U.S. for the licensed U.S. patent.

²¹⁷ Deposition of Sanford Wadler, September 17, 2020, p. 18.

²¹⁸ Deposition of Sanford Wadler, September 17, 2020, p. 18.

²¹⁹ Deposition of Sanford Wadler, September 17, 2020, pp. 18-19.

²²⁰ Deposition of Sanford Wadler, September 17, 2020, pp. 29-31, 90.

²²¹ Deposition of Sanford Wadler, September 17, 2020, pp. 30-36.

²²² Deposition of Sanford Wadler, September 17, 2020, p. 36.

²²³ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.D.

²²⁴ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.D.



Based on the analysis above, I find that the Applera/Bio-Rad License is indicative of a reasonable royalty rate in this case in excess of 15% of net sales.

12.1.4 MRC/RainDance License

On December 5, 2005, MRC executed a license agreement with RainDance, titled “Exclusive License Agreement” (the “MRC/RainDance License”).²²⁵ The MRC/RainDance License recites that RainDance sought to obtain an exclusive license to certain of MRC’s intellectual property.²²⁶

I understand that MRC is a non-profit research entity rather than a commercial entity. MRC is a part of UK Research and Innovation, which “works in partnership with universities, research organizations, businesses, charities, and government to create the best possible environment for research and innovation to flourish.”²²⁷ MRC’s mission includes encouraging and supporting research to improve human health and disseminating knowledge and technology to improve the quality of life and economic competitiveness of the UK.²²⁸ MRC invests in this research on the behalf of the UK taxpayer.²²⁹ RainDance is “a life sciences company [that] provides microdroplet-based solutions for the early detection of cancer and other diseases.”²³⁰

Under the MRC/RainDance License, RainDance was granted:²³¹

- MRC Exclusive Patent Rights – “an exclusive, royalty-bearing license, including the right to grant sublicenses under the MRC Exclusive Patent Rights to make, use and sell Licensed Products in the Territory within the Field, subject to the terms and conditions of this Agreement.”
- MRC Joint Patent Rights – “an exclusive (i.e. of all MRC’s interest), royalty-bearing license, including the right to grant sublicenses under the MRC Joint Patent Rights to make, use and sell Licensed Products in the Territory within the Field, subject to the terms and conditions of this Agreement.”
- MRC Non-Exclusive Patent Rights – “an exclusive, royalty-bearing license, including the right to grant sublicenses under the MRC Non-Exclusive Patent Rights to make, use and sell Licensed Products in the Territory within the fields of (i) small drug molecules of less than 100 daltons or peptides of less than ten amino acids residues, and (ii) use in microfluidic system where at least one channel within the system has a cross-sectional dimension not exceed in 1,000 micro-meters, subject to the terms and conditions of this Agreement. For uses other than the foregoing or uses other than the MRC Excluded Uses, MRC hereby grants to RainDance a non-exclusive, royalty-bearing license, including the right to grant sublicenses under the MRC Non-Exclusive Patent Rights, to make, use and sell Licensed Products in the Territory within the Field, subject to the terms and conditions of this Agreement.”

²²⁵ RDTX00023699-719 at 699.

²²⁶ RDTX00023699-719 at 699.

²²⁷ “About Us,” *Medical Research Council*, <https://mrc.ukri.org/about/>; “About Us,” *UK Research and Innovation*, <https://www.ukri.org/about-us/>.

²²⁸ “What We Do,” *Medical Research Council*, <https://mrc.ukri.org/about/what-we-do/>.

²²⁹ “What We Do,” *Medical Research Council*, <https://mrc.ukri.org/about/what-we-do/>.

²³⁰ “RainDance Technologies,” *Crunchbase*, <https://www.crunchbase.com/organization/raindance-technologies>.

²³¹ RDTX00023699-719 at 704.



The MRC/RainDance License included a Development and Commercialization of Licensed Products section, under which RainDance agreed to use commercially reasonable efforts and due diligence in the research, development, and commercialization of Licensed Products.²³² Specifically, the MRC/RainDance defined Licensed Products as follows:²³³

- Type A Product – any system that comprises an automated, robotic and/or high throughput device or instrument covered by an issued Valid Claim for the carrying out, performance and/or practicing of the Licensed Process.
- Type B Product – any Microfluidic Chip covered by an issued Valid Claim which is used in the carrying out, performance and/or practicing of the Licensed Process.
- Type C Product – the performance of any Service that makes use of any Licensed Product in the carrying out, performance and/or practicing of the Licensed Process.
- Type D Product – any other product that is manufactured or produced, in whole or in part, by RainDance, through the use of a Licensed Product that is not designed for use on a Type B Product.
- Type E Product – any product that does not fall under Type A, B, C, or D Product for carrying out, performing and/or practicing of the Licensed Process.

MRC and RainDance defined the Licensed Process as any method or process for the controlled manipulation of microdroplets in a microfluidic system that is claimed in the Patent Rights.²³⁴ I understand that the “Claim Areas” mean the “method, process, system or kit for the controlled manipulation of microdroplets in a microfluidic system, including but not limited to microdroplet formation, coalescence, combination, compartmentalization, dilution, division, fusion, sorting and splitting, and the analysis thereof.”²³⁵

As consideration, RainDance agreed to pay MRC an initial payment of \$25,000.²³⁶ RainDance also agreed to issue MRC 200,000 shares of RainDance common stock (approximately 2% of the founding stock of RainDance).²³⁷ Additionally, RainDance agreed to annual license maintenance fee of \$25,000 payable within 30 days following the issuance of the first Valid Claim to issue of any patent under MRC Exclusive Patent Rights and for every year thereafter.²³⁸ Each annual license maintenance fee was creditable on a dollar-for-dollar basis against royalties of Net Sales made in the same calendar year.²³⁹ RainDance further agreed to pay MRC running royalties on Net Sales, as set forth below:

²³² RDTX00023699-719 at 705.

²³³ RDTX00023699-719 at 700.

²³⁴ RDTX00023699-719 at 701.

²³⁵ RDTX00023699-719 at 699.

²³⁶ RDTX00023699-719 at 705.

²³⁷ RDTX00023699-719 at 706.

²³⁸ RDTX00023699-719 at 705.

²³⁹ RDTX00023699-719 at 705.

Figure 10: MRC/RainDance License Royalty Rates²⁴⁰

Product Type	Royalty Rate	Royalty Base
Type A	2%	Net Sales
Type B	3%	Net Sales
Type C	4%	Net Services Revenue
Type D	1%	Net Sales
Type E	2% - 3%	Net Sales

In the event a license or sublicense from a third party was necessary for the manufacture, sale, or use of any Licensed Product, RainDance was entitled to deduct from the royalties due MRC the amount of royalties RainDance must pay to such third parties for such license or sublicense, provided that in no event the royalty due MRC be reduced by more than 50%.²⁴¹ I understand that the MRC/RainDance License had a term from the effective date through the last to expire of the Licensed Patent Rights.²⁴²

The Licensed Patent Rights were defined to include “any of the patents and patent applications described in the Patent Rights and any divisional, continuation, continuation-in-part ..., reissue, reexamination, confirmation, revalidation, registration, patent of addition, renewal, extension or substitute thereof, or any patent issuing therefrom or any supplementary protection certificates related thereto.”²⁴³ Notably, the MRC Joint Patent Rights, which are defined in Exhibit C of the MRC/RainDance License, include three patent applications which were jointly licensed by MRC and Harvard.²⁴⁴ The patent applications were filed as PCT/GB05/003924, PCT/GB05/003889, and PCT/GB05/003927.²⁴⁵ I note that the Patents-in-Suit are both continuation of U.S. Patent Application No. 11/665,030, filed as PCT Application No. PCT/GB2005/003889.²⁴⁶ The MRC/RainDance License notes that the patent application PCT/GB05/003924 is a part of Harvard Case No. 2407.²⁴⁷ I understand that Dr. Darren Link, Vice President of Research and Development in the Digital Biology Group of Bio-Rad and one of the named inventors of the Patents-in-Suit,²⁴⁸ recognized the Harvard 2407 case as the case that includes the Patents-in-Suit.²⁴⁹

I understand that the MRC/RainDance License is technically comparable to the license that would result from the hypothetical negotiation in this case as it includes a license to the Patents-in-Suit.

²⁴⁰ RDTX00023699-719 at 705.

²⁴¹ RDTX00023699-719 at 705-706.

²⁴² RDTX00023699-719 at 703.

²⁴³ RDTX00023699-719 at 700.

²⁴⁴ RDTX00023699-719 at 718 and RDTX00023614-653 at 651.

²⁴⁵ RDTX00023699-719 at 718.

²⁴⁶ U.S. Patent No. 8,871,444, p. 1 and U.S. Patent No. 9,919,277, p. 1.

²⁴⁷ I understand that Harvard case numbers are what Harvard uses to refer to specific patent families. RDTX00023699-719 at 718 and Deposition of Darren Link, Ph.D., October 7, 2020, p. 84.

²⁴⁸ Deposition of Darren Link, Ph.D., October 7, 2020, p. 145; U.S. Patent No. 8,871,444, p. 1; and U.S. Patent No. 9,919,277, p. 1.

²⁴⁹ Deposition of Darren Link, Ph.D., October 7, 2020, pp. 91-92.



However, there are aspects of the MRC/RainDance License that are not economically comparable to the license that would result from the hypothetical negotiation in this case. Key differences include 1) the licensor and licensee to this license are a not-for-profit research institution and a for-profit commercial entity, rather than two commercial entities in the same or related fields and potential competitors; 2) the license granted was exclusive, rather than non-exclusive; 3) the license was entered into at an early stage of development, rather than in the time just before the commercial launch of an infringing product.

Generally, a not-for-profit research institution will charge a for-profit commercial entity reduced royalty rates, as compared to a licensor that is a for-profit commercial entity in the same or a related field and potential competitors. For example, On March 6, 2007, certain shared core values were memorialized by eleven of the nation's top research universities, along with the Association of American Medical Colleges ("AAMC"), in a white paper entitled, "In the Public Interest: Nine Points to Consider in Licensing University Technology."²⁵⁰ This white paper encompasses a set of nine guidelines meant to "protect the public interest when universities grant licenses ... to private parties," as well as to "foster thoughtful approaches and encourage creative solutions to complex problems that may arise when universities license technologies in the public interest and for society's benefit."²⁵¹ Since its issuance, the white paper has been endorsed by the Association of University Technology Managers ("AUTM"), and accepted by over 100 universities and other organizations across the world.²⁵² In the guidelines, "[u]niversities are encouraged to use [licensing] approaches that balance a licensee's legitimate commercial needs against the university's goal (based on its educational and charitable mission and the public interest) of ensuring broad practical application of the fruits of its research programs."²⁵³ According to Dr. David Korn, former AAMC senior vice president, "[t]he points in this white paper are important reminders to the academic technology transfer community from pioneers in this field... The guiding precept is that discoveries made at universities are made in the public interest regardless of the sources of research funds. We must never lose sight of the social contract that universities have with the society at large."²⁵⁴

Generally, an exclusive license may include higher royalty rates than a non-exclusive license when the licensee places a high value on the competitive advantage that exclusive access to the intellectual property may bring or may include lower royalty rates than a non-exclusive license when the licensee is required to make significant additional investments in the technology and the market. I note that under the MRC/RainDance License, RainDance was required to "exercise commercially reasonable efforts and due diligence in the

²⁵⁰ "In the Public Interest: Nine Points to Consider in Licensing University Technology," p. 1, <http://news.stanford.edu/news/2007/march7/gifs/whitepaper.pdf>.

²⁵¹ Stanford News Service, "Major universities offer guidelines for responsible technology licensing," March 6, 2007, <https://news.stanford.edu/pr/2007/pr-tech-030707.html>; Association of University Technology Managers, *Nine Points to Consider*, <https://autm.net/about-tech-transfer/principles-and-guidelines/nine-points-to-consider-when-licensing-university>; Association of American Universities, "Major universities offer guidelines for responsible technology licensing," March 6, 2007, <https://www.aau.edu/newsroom/press-releases/nine-points-consider-licensing-university-technology>; "In the Public Interest: Nine Points to Consider in Licensing University Technology," p. 1, <http://news.stanford.edu/news/2007/march7/gifs/whitepaper.pdf>.

²⁵² Association of University Technology Managers, *Nine Points to Consider*, <https://autm.net/about-tech-transfer/principles-and-guidelines/nine-points-to-consider-when-licensing-university>.

²⁵³ "In the Public Interest: Nine Points to Consider in Licensing University Technology," p. 2, <http://news.stanford.edu/news/2007/march7/gifs/whitepaper.pdf>.

²⁵⁴ Stanford News Service, "Major universities offer guidelines for responsible technology licensing," March 6, 2007, <https://news.stanford.edu/pr/2007/pr-tech-030707.html>.



research, development and commercialization of Licensed Products under this Agreement” and was required to bear the full costs of all activities relating to development and commercialization.²⁵⁵

Generally, a license for technology that is in an early stage of development may include lower royalty rates than a license entered into in the time just before commercial launch of a fully developed product. For example, a survey conducted by the Licensing Executives Society, titled “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016” (the “LES Survey”) considered royalty rates and deal terms from a sample of license agreements executed in 2014, 2015, and 2016.²⁵⁶ The deals included in the LES Survey covered a wide variety of asset types, including: new chemical entity, existing branded product, drug/device combination product, platform, in vitro diagnostics, in vivo diagnostics, drug use, drug delivery, and others.²⁵⁷

The timing of deals spanned from discovery through regulatory approval and launch.²⁵⁸ For the purposes of its observations, the LES Survey divided the deals it considered into 4 groups: Group 1 included “Preclinical Through IND Filed;” Group 2 included “Phase I Enrolling Through Phase II Enrolling;” Group 3 included “Phase II Completed Through Phase III Completed;” and Group 4 included “Registration/NDA Submitted Through to Launched.”²⁵⁹ Proof of concept (“POC”) was considered to occur between Groups 2 and 3.²⁶⁰

Based on these groupings, and drawing upon information from its four most recent surveys, the LES Survey reported the average royalty by state of development for deals with flat and tiered royalties.²⁶¹ The LES Survey stated that its data regarding deals with flat royalties “reveals a substantial increase in royalty rate for assets that have achieved proof of concept.”²⁶² Similar results were obtained for deals with tiered royalties, regarding which the LES Survey stated that “[t]he data indicate increasing financial returns associated with later points in development.”²⁶³ As seen in the following table, I have considered the average flat royalty for each group, in order to calculate the average royalty as a % of Group 4 and an adjustment factor that indicates the multiple by which Group 4 is larger.²⁶⁴ This data indicates that licenses executed near the launch

²⁵⁵ RDTX00023699-719 at 705.

²⁵⁶ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, pp. 7, 30. I understand that 117 licensing deals were considered for this survey, 24 of which included assets related to diagnostics.

²⁵⁷ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, p. 44.

²⁵⁸ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, pp. 29-30. In particular, the timing of deals relating to diagnostics spanned from “pre-IDE” to regulatory approval and launch.

²⁵⁹ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, p. 43.

²⁶⁰ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, p. 43.

²⁶¹ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, pp. 48, 73. A total of 122 deals with flat royalties were considered by the LES Survey for this analysis. A total of 76 deals with tiered royalties were considered for this analysis, although data was only reported for Groups 1 through 3.

²⁶² “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, p. 48.

²⁶³ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, p. 73.

²⁶⁴ Average as % of Group 4 = Group Average Royalty / Group 4 Average Royalty. Adjustment Factor = Group 4 Average Royalty / Group Average Royalty.



of the licensed product customarily result in royalty rates that are twice (or more) as large as licenses executed prior to proof of concept, within the life sciences industry.²⁶⁵

Figure 11: Average Royalty by Stage of Development – Flat Royalties²⁶⁶

Stage of Development	Average Royalty	Average as % of Group 4	Adjustment Factor
Group 1 (Preclinical)	4.5%	37.5%	2.67
Group 2 (Pre-POC Clinical)	6.0%	50.0%	2.00
Group 3 (Post-POC Clinical)	11.0%	91.7%	1.09
Group 4 (Registered/Launched)	12.0%	100.0%	1.00

Moreover, it is typical for licenses with a not-for-profit research institution as the licensor to relate to early stage technology. For instance, a report prepared for the Biotechnology Innovation Organization and AUTM explained that its “member institutions typically license early-stage technology requiring a lot more development by their licensees” and that “nonprofit technology is developed by its licensees for years after it is licensed but before products are sold.”²⁶⁷ In this case, while the MRC/RainDance License was entered into on December 5, 2005,²⁶⁸ I understand that RainDance did not launch its first product until 2012, approximately 6 years later, with additional products not launching until 2013 and 2014.²⁶⁹ This long delay indicates that the technology licensed by RainDance from MRC was at a relatively early stage of development.

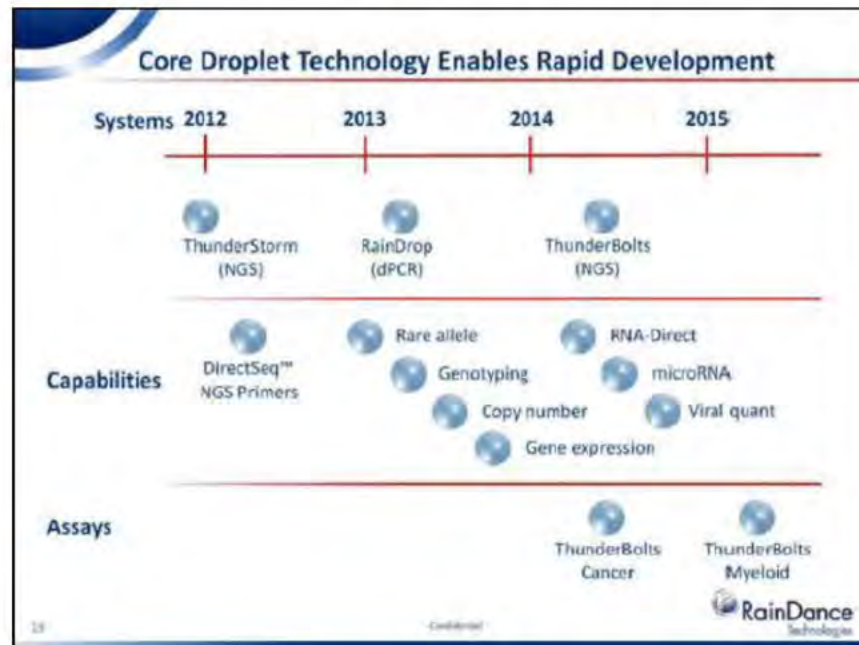
²⁶⁵ I note that this analysis of deals does not appear to include deals for assets characterized as “Platform” or “Diagnostics.” “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, pp. 46, 61. The section of the LES Survey dealing more specifically with the profiles of diagnostics deals does not contain a similar analysis. “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, pp. 76-84. This may be the result of the smaller sample size (38 diagnostics flat royalty deals compared to the 122 flat royalty deals considered in the analysis above). “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, pp. 48, 78, 187-190. However, it is logical that a similar relationship would exist for licenses related to other life science assets for a number of reasons. The greater the amount of time between the execution of a license and the commercialization of a licensed product, the greater the incentive and opportunity for a licensee to design around the licensed asset and avoid paying royalties entirely. Additionally, early in the development of an asset, especially prior to proof of concept, the asset is untested, and its value is uncertain, while that value becomes more obvious as the licensed product moves closer to commercialization. These and other market forces within the life sciences industry generally cause royalty rates to increase as the date of the license nears the date of commercialization. My experience in this industry as an expert both within and outside of the litigation context confirms this relationship.

²⁶⁶ “Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” Licensing Executives Society, February 2017, p. 46, 48.

²⁶⁷ “The Economic Contribution of University/Nonprofit Inventions in the United States: 1996-2017,” *Biotechnology Innovation Organization & AUTM*, June 5, 2019, p. 7, https://autm.net/AUTM/media/About-Tech-Transfer/Documents/Economic_Contribution_Report_BIO_AUTM_JUN2019_web.pdf

²⁶⁸ RDTX00023699-719 at 699.

²⁶⁹ RDTX00102093-158 at 112.

Figure 12: RainDance Systems²⁷⁰

Based on the three economic factors discussed above, it is my opinion that a quantitative adjustment must be made to the royalty rates stated in the MRC/RainDance License in order to account for the differences between the economic circumstances surrounding that license and those surrounding the hypothetical negotiation in this case. In my opinion, the hypothetical negotiation in this case would result in a royalty rate at least double the royalty rates stated in the MRC/RainDance License. As a result, the stated royalty rates of 2% and 3% for instruments and consumables are indicative of royalty rates of 4% and 6% as a floor in the context of the hypothetical negotiation in this case.

In light of the more economically comparable licenses discussed above, with royalty rates in the range of 10% to 15%, I again note that the royalty rate agreed upon in the context of the hypothetical negotiation would be higher than the rate indicated by this license.

12.1.5 Harvard/RainDance License

On February 23, 2006, Harvard executed a license agreement with RainDance, titled “License Agreement” (the “Harvard/RainDance License”).²⁷¹ The Harvard/RainDance License recites that Harvard desires to have products developed and commercialized to benefit the public and is willing to grant a License under certain intellectual property rights to RainDance.²⁷²

²⁷⁰ RDTX00102093-158 at 112.

²⁷¹ RDTX00023614-653 at 615.

²⁷² RDTX00023614-653 at 615.



I understand that Harvard is a university rather than a commercial entity. Harvard's "Statement of Policy in Regard to Intellectual Property (IP Policy)" states that:²⁷³

First, the policy should encourage the viewpoint that ideas or creative works produced at the University should be used in ways that are meaningful in the public interest... Thus, dissemination and use of ideas and creativity should be encouraged throughout the Harvard community. In other circumstances, the public may benefit from the stronger application of legal protection to the innovations and creative works of inventors and authors so that they may be developed into useful products. Although this policy recognizes that public benefit should be placed before financial gain, it is appropriate and often desirable for the University and inventors to benefit financially from the use of a particular invention or creative work.

RainDance is "a life sciences company [that] provides microdroplet-based solutions for the early detection of cancer and other diseases."²⁷⁴

Under the Harvard/RainDance License, RainDance was granted:²⁷⁵

- Exclusive Harvard Patent Rights – "an exclusive..., worldwide, royalty-bearing license under Harvard's interest in the Harvard Patent Rights solely to develop, make, have made, use, market, offer for sale and sell Licensed Products in the Unlimited Field."
- Harvard/MRC Patent Rights – "an exclusive..., royalty-bearing license under Harvard's interest in the Harvard/MRC Patent Rights solely to develop, make, have made, use, market, offer for sale, and sell Licensed Products in the Unlimited Field within the territory of the United States."
- Harvard Case 2222 Patent Rights – "an exclusive..., worldwide, royalty-bearing license under the Harvard Case 2222 Patent Rights solely to develop, make, have made, use, market, offer for sale, sell and import 2222 Licensed Products solely in the 2222 Field."
- Non-Exclusive Harvard Patent Rights – "a non-exclusive, worldwide, royalty-bearing license under the Non-Exclusive Harvard Patent Rights solely to develop, make, have made, use, market, offer for sale, sell and import Licensed Products in the Unlimited Field."
- Harvard Case 2183 Patent Rights – "a non-exclusive, royalty-bearing license under the Harvard Case 2183 Patent Rights solely to develop, make, have made, use, market, offer for sale and sell Licensed Products in the 2183 Field solely within the territory of the United States."

RainDance was also granted the right to sublicense.²⁷⁶

The Harvard/RainDance Licensed included a Development and Commercialization section, under which RainDance agreed to use its best efforts: (i) to develop Licensed Products in accordance with the Development Plan, (ii) to introduce Licensed Products into the commercial market and (iii) to market

²⁷³ "Statement of Policy in Regard to Intellectual Property (IP Policy)," *Harvard*, <https://otd.harvard.edu/faculty-inventors/resources/policies-and-procedures/statement-of-policy-in-regard-to-intellectual-property/>.

²⁷⁴ "RainDance Technologies," *Crunchbase*, <https://www.crunchbase.com/organization/raindance-technologies>.

²⁷⁵ RDTX00023614-653 at 623-625.

²⁷⁶ RDTX00023614-653 at 625.



Licensed Products following such introduction into the market.²⁷⁷ Specifically, the Harvard/RainDance License defined Licensed Products as follows:²⁷⁸

- Type A Product – any instrument for the carrying out, performance and/or practicing of a Licensed Process that is not a Type B Product (for example, an instrument used for the control of the flow of liquid into or the manipulation of liquid on a Type B Product).
- Type B Product – any Microfluidic Chip, the making, using, or selling of which falls within the scope of a Valid Claim.
- Type C Product – the performance of any Service.
- Type D Product – any other product that is manufactured or produced, in whole or in part, by or on behalf of or in collaboration with Licensee or an Affiliate of Licensee, through the use of a Licensed Product, and is not designed and sold for use on a Type B Product.

Harvard and RainDance defined the Licensed Process as any method or process for the controlled manipulation of microdroplets in a microfluidic system that is claimed in the Patent Rights.²⁷⁹ I note that Service was defined as the use of a Type A Product and/or Type B Product, and/or the carrying out or performance of a Licensed Process on a “for-fee” basis for any third party.²⁸⁰

As consideration, RainDance agreed to pay Harvard a license issuance fee of \$80,000.²⁸¹ RainDance also agreed to issue Harvard 550,000 shares of RainDance common stock (approximately 5% of the outstanding capital stock of RainDance, on a fully-diluted basis).²⁸² Upon the issuance of the first patent within the Licensed Patent Rights to issue in any country, and on each anniversary thereafter, RainDance agreed to pay Harvard a maintenance fee of \$50,000.²⁸³ RainDance further agreed to pay Harvard running royalties on Net Sales, as set forth below:

Figure 13: Harvard/RainDance License Royalty Rates²⁸⁴

<u>Product Type</u>	<u>Royalty Rate</u>	<u>Royalty Base</u>
Type A	2%	Net Sales
Type B	3%	Net Sales
Type C	4%	Net Sales
Type D	1%	Net Sales

²⁷⁷ RDTX00023614-653 at 627.

²⁷⁸ RDTX00023614-653 at 618.

²⁷⁹ RDTX00023614-653 at 618.

²⁸⁰ RDTX00023614-653 at 620.

²⁸¹ RDTX00023614-653 at 627.

²⁸² RDTX00023614-653 at 628.

²⁸³ RDTX00023614-653 at 629.

²⁸⁴ RDTX00023614-653 at 629-630.



In the event that RainDance is required to make royalty payments under a Third Party License as a result of the sale of a Licensed Product in a certain country, RainDance may offset such third-party payments with respect to such sale of such Licensed Product against the royalty payments that are due to Harvard, provided that in no event shall the royalty payments to Harvard be reduced by more than 50%.²⁸⁵ With respect to each type of product, royalties shall be payable on a country-by-country basis, so long as the making, using or selling of the Licensed Product is covered by a Valid Claim in the country in which the Licensed Product is made, used, or sold.²⁸⁶

As discussed above with the MRC/RainDance License, the Harvard/MRC Patent Rights, which are defined in Exhibit 1.10 of the Harvard/MRC License, include three patent applications which were jointly licensed by Harvard and MRC.²⁸⁷ The three U.S. patent applications were application No. 10/961,695, application No. 10/963,044, and application No. 10/962,952.²⁸⁸ The Harvard/MRC Patent Rights also included “any patent or patent application that claims priority to and is a divisional, continuation, reissue, renewal, reexamination, substitution or extension” of these three patent applications.²⁸⁹ I note that the Patents-in-Suit are both continuations of application No. 10/961,695.²⁹⁰ The Harvard/RainDance License states that the application No. 10/961,695 belongs to the 2407 Harvard case.²⁹¹ As discussed with the MRC/RainDance License, Dr. Link recognized the Harvard 2407 case as the case that includes the Patents-in-Suit.²⁹²

The Harvard/RainDance License was amended on September 26, 2006, as the parties inadvertently failed to include a separate license grant clause for the Harvard Case 2215 Patent Rights.²⁹³ The amendment also fixed a typographical error and clarified a matter regarding the reimbursement of patent expenses.²⁹⁴ The Harvard/RainDance License was amended for a second time on August 25, 2011, as RainDance desired to obtain a license under Harvard Case 3080 Patent Rights, which were developed in research conducted by Dr. David Weitz.²⁹⁵ Separately, Harvard had received consent of MRC to grant licenses under Harvard’s interest in the Harvard/MRC Patent Rights outside of the United States.²⁹⁶

I understand that the Harvard/RainDance License is technically comparable to the license that would result from the hypothetical negotiation in this case as it includes a license to the Patents-in-Suit.

However, there are aspects of the Harvard/RainDance License that are not economically comparable to the license that would result from the hypothetical negotiation in this case. Key differences include 1) the licensor and licensee to this license are a not-for-profit research institution and a for-profit commercial entity, rather than two commercial entities in the same or related fields and potential competitors; 2) the license

²⁸⁵ RDTX00023614-653 at 630.

²⁸⁶ RDTX00023614-653 at 630.

²⁸⁷ RDTX00023614-653 at 651 and RDTX00023699-719 at 701 and 718.

²⁸⁸ RDTX00023614-653 at 651.

²⁸⁹ RDTX00023614-653 at 617.

²⁹⁰ U.S. Patent No. 8,871,444, p. 1 and U.S. Patent No. 9,919,277, p. 1.

²⁹¹ RDTX00023614-653 at 651.

²⁹² Deposition of Darren Link, Ph.D., October 7, 2020, pp. 91-92.

²⁹³ RDTX00023612-613 at 612.

²⁹⁴ RDTX00023612-613 at 612.

²⁹⁵ RDTX00023608-611 at 608.

²⁹⁶ RDTX00023608-611 at 608.



granted was exclusive, rather than non-exclusive; 3) the license was entered into at an early stage of development, rather than in the time just before the commercial launch of an infringing product.

Generally, as discussed in Section 12.1.4 above, a not-for-profit research institution will charge a for-profit commercial entity reduced royalty rates, as compared to a licensor that is a for-profit commercial entity in the same or a related field and potential competitors. Notably, Harvard is a signatory to the “Nine Points to Consider in Licensing University Technology” white paper discussed above.²⁹⁷

Generally, as discussed in Section 12.1.4 above, an exclusive license may include higher royalty rates than a non-exclusive license when the licensee places a high value on the competitive advantage that exclusive access to the intellectual property may bring or may include lower royalty rates than a non-exclusive license when the licensee is required to make significant additional investments in the technology and the market. I note that in the Harvard/RainDance License, RainDance “represented to Harvard, in order to induce Harvard to enter into this Agreement, that Licensee shall commit itself to thorough, vigorous and diligent efforts to develop, obtain regulatory approval for (if needed) and commercialize products based on the Licensed Patent Rights.”²⁹⁸

Generally, as discussed in Section 12.1.4 above, a license for technology that is in an early stage of development may include lower royalty rates than a license entered into in the time just before commercial launch of a fully developed product. In this case, while the Harvard/RainDance License was entered into on February 23, 2006,²⁹⁹ I understand that RainDance did not launch its first product until 2012, approximately 6 years later, with additional products not launching until 2013 and 2014.³⁰⁰ This long delay indicates that the technology licensed by RainDance from MRC was at a relatively early stage of development.

Based on the three economic factors discussed above, it is my opinion that a quantitative adjustment must be made to the royalty rates stated in the Harvard/RainDance License in order to account for the differences between the economic circumstances surrounding that license and those surrounding the hypothetical negotiation in this case. In my opinion, the hypothetical negotiation in this case would result in a royalty rate at least double the royalty rates stated in the Harvard/RainDance License. As a result, the stated royalty rates of 2% and 3% for instruments and consumables are indicative of royalty rates of 4% and 6% as a floor in the context of the hypothetical negotiation in this case.

In light of the more economically comparable licenses discussed above, with royalty rates in the range of 10% to 15%, I again note that the royalty rate agreed upon in the context of the hypothetical negotiation would be higher than the rate indicated by this license.

²⁹⁷ Association of University Technology Managers, *Nine Points to Consider*, <https://autm.net/about-tech-transfer/principles-and-guidelines/nine-points-to-consider-when-licensing-university>.

²⁹⁸ RDTX00023614-653 at 615.

²⁹⁹ RDTX00023614-653 at 615.

³⁰⁰ RDTX00102093-158 at 112.

³⁰¹ STFR00067221-231 at 221.



INTELLECTUAL CAPITAL EQUITY

[REDACTED]

[REDACTED]: [REDACTED] 10X is a “life science technology company” whose “Chromium platform, powered by Next GEM technology, enables integrated analysis of single cells at massive scale.”³⁰⁴

[REDACTED]

³⁰² STFR00067221-231 at 221.

[REDACTED]

³⁰⁴ 10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019, p. 2; “The Power of Single Cell Partitioning,” *10X Genomics*, p. 1, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf.

³⁰⁵ STFR00067221-231 at 223.

³⁰⁶ STFR00067221-231 at 223.

³⁰⁷ STFR00067221-231 at 222-223.

³⁰⁸ STFR00067221-231 at 224.

³⁰⁹ STFR00067221-231 at 223.

³¹⁰ STFR00067221-231 at 226.

³¹¹ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.E.



In light of the more comparable licenses discussed above, with royalty rates in the range of 10% to 15%, I again note that the royalty rate agreed upon in the context of the hypothetical negotiation would be higher than the rate indicated by this license.

12.1.7 Other Licenses

I note that the other licenses that I have reviewed are less economically comparable to the license that would result from the hypothetical negotiation, and/or relate to intellectual property that is less technically comparable to the Patents-in-Suit.

For example, these other licenses generally include 1) exclusive license rights and/or 2) not-for-profit university and research institution licensors. As discussed above in Section 9, the license resulting from the hypothetical negotiation would be a bare non-exclusive patent license. Additionally, the bargaining positions between 1) a not-for-profit university or research institution licensor and a for-profit commercial entity licensee, where the parties seek to have the licensee commercialize the licensor's recently discovered technology, and 2) two for-profit commercial entities operating generally in the same burgeoning field as licensor and licensee, on the eve of the licensee launching its commercial product, as in the hypothetical negotiation here, are substantially different and indicate that the licenses with not-for-profit universities and other research institutions are less probative of the result of the hypothetical negotiation in this case.

However, I note that I have considered the MRC/RainDance License and the Harvard/RainDance License above, along with certain quantitative adjustments, because they are licenses for intellectual property that include the Patent-in-Suit, and are therefore the most technically comparable licenses in the record.

12.2 The Income Approach

The Income Approach provides a systematic framework for estimating an asset's price based on the value of the benefits derived from the use of that asset. As described in Economic Damages in Intellectual Property:

The income approach is a method used to value intellectual property assets based on the present value of the future income stream generated by an asset. There are three major inputs to the income approach: (1) expected future cash flows from the asset; (2) economic life of the asset; and (3) business risk associated with the realization of the cash flow stream. The key goal is to estimate the present value of incremental profits generated by the asset over its economic life, taking into account the risk associated with generating those profits. Once the present value of the incremental profits is determined, these profits are split in some manner between the licensor and licensee, typically in the form of a royalty.³¹²

As discussed throughout this report, I understand that all of the Patents-in-Suit are integral to the Accused Products. However, I have not been provided with sufficient data to perform an Income Approach analysis in this case.

³¹² Slottje, Daniel, *Economic Damages in Intellectual Property*, 2006, pp. 291-293.



12.3 The Cost Approach

As described in Economic Damages in Intellectual Property:

*The cost approach values assets based on the cost to create and develop the assets. The premise behind the cost approach is that no party involved in an arm's-length transaction would be willing to pay more to use the property than the cost to replace the property. In the context of patents, for instance, a potential licensee would not pay more to license a patent than the cost to design around the technology contributed by the patent. An alternative to designing around the technology would be to purchase the technology. Accordingly, a potential licensee would not pay more to license the technology than it would have to pay to purchase or create the technology.*³¹³

Under the Cost Approach, the licensee would pay no more in royalties than the cost of a non-infringing alternative. Properly applied, the Cost Approach considers out-of-pocket expenditures, as well as risks, lost sales and other adverse economic impacts connected with the alternative technology.

I am not aware of any successful design arounds that 10X has put forward that are commercially acceptable non-infringing alternative to the Patents-in-Suit.

13. GEORGIA-PACIFIC FACTOR ANALYSIS

The hypothetical negotiation is to be evaluated in the context of the specific business facts and circumstances faced at that time by the patentee and the prospective licensee. *Georgia-Pacific Corp. v. United States Plywood Corp.* provides a 15 factor framework to perform such an analysis.³¹⁴ For each of the 15 *Georgia-Pacific* factors, I have identified the relevant information and facts that may have influenced the royalty rate in the hypothetical negotiation. I note that to some extent, certain of the *Georgia-Pacific* factors have already been addressed in connection with my analysis above.

13.1 Factor #1: The royalties received by the patentee for the licensing of the patent-in-suit, proving or tending to prove an established royalty.

Factor #1 represents a quantitative valuation metric associated with the determination of a reasonable royalty. Analysis of this factor is sometimes referred to as the Market Approach in the context of intellectual property valuation, which I have addressed above in Section 12.1. As discussed above, the Market Approach attempts to measure the value of an intangible asset by drawing inferences from actual market transactions involving that asset. In general, the more similar those market transactions are to the transaction in question (i.e., the hypothetical negotiation), the more useful the information. While exactly matching transactions cannot always be found, they do exist in some situations. In the absence of an exactly matching transaction, market transactions that share some characteristics with the subject transaction can provide guidance as to the terms and conditions that may be applicable in a particular case.

I have considered relevant agreements in my use of the Market Approach. In particular, I have considered that the MRC/RainDance License and the Harvard/RainDance License for the Patents-in-Suit are indicative of royalty rates of 4% to 6% as a floor in the context of the hypothetical negotiation in this case. Therefore, the impact of this factor is reflected in my quantitative analysis described above in Section 12.1.

Impact on Hypothetical Negotiations: Considered in Quantitative Analysis

³¹³ Slottje, Daniel, *Economic Damages in Intellectual Property*, 2006, pp. 291-293.

³¹⁴ *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, (S.D.N.Y. 1970).



13.2 Factor #2: The rates paid by the licensee for the use of other patents comparable to the patent-in-suit.

Factor #2 also relates to the Market Approach and considers licenses entered into by the licensee which may provide relevant insight into the hypothetical negotiation.

As above, I have considered relevant agreements in my use of the Market Approach. In particular, I have considered that the [REDACTED] is indicative of a reasonable royalty rate of [REDACTED] as a floor in the context of the hypothetical negotiation in this case. Therefore, the impact of this factor is reflected in my quantitative analysis described above in Section 12.1.

Impact on Hypothetical Negotiations: Considered in Quantitative Analysis

13.3 Factor #3: The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold.

I have considered the hypothetical negotiation would have resulted in a non-exclusive license that would: 1) have been unrestricted as to customers or territory; 2) cover products covered by the asserted claims made, used, sold, or offered for sale in the U.S.; and 3) cover sales made outside of the U.S. only to the extent such sales touch the U.S. and/or are otherwise implicated by U.S. patent laws. Although it would have been a relevant consideration to the hypothetical negotiation, I do not believe it would have placed either party in a relatively stronger bargaining position.

Additionally, I have already considered, in my analysis of the Market Approach, the extent to which the relevant license agreements encompass a broader scope than a non-exclusive, unrestricted bare patent license to the Patents-in-Suit.

Therefore, I find that this consideration would tend to have a neutral influence in this hypothetical negotiation.

Impact on Hypothetical Negotiations: Neutral

13.4 Factor #4: The licensor's established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.

Regarding the Patents-in-Suit, MRC, Harvard, and RainDance agreed that RainDance would have the exclusive right to practice the Patents-in-Suit in the relevant field.³¹⁵ Furthermore, I am not aware of RainDance or Bio-Rad ever granting a sublicense to the Patents-in-Suit to any third-party. The exclusive nature of the MRC/RainDance License and Harvard/RainDance License indicates that MRC, Harvard, RainDance, and Bio-Rad would have sought to maintain RainDance/Bio-Rad's exclusive right to practice the Patents-in-Suit.

³¹⁵ RDTX00023699-719 at 704; RDTX00023614-653 at 623.



Additionally, Darren Link, Consultant for Bio-Rad and former Co-founder and CFO of RainDance, testified as follows:³¹⁶

[The board of directors of RainDance] thought the best position and the best way to monetize their investment and the best way to develop the technology was to have an exclusive space that -- where RainDance and RainDance alone could practice, and that would give and provide us the time to develop the technology and to develop the applications and to develop the markets to build value without licensing to competitors, or even if those competitors aren't doing, you know, exactly the same applications -- if they're doing, you know, similar things, without making -- without blurring any lines like that.

However, I also recognize that in March 2016, prior to acquiring RainDance, Bio-Rad considered certain “out-licensing opportunities” for the “RainDance portfolio at [a] [REDACTED].”³¹⁷

Therefore, I conservatively find that this consideration would tend to have a neutral influence in this hypothetical negotiation.

Impact on Hypothetical Negotiations: Neutral

13.5 Factor #5: The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promoter.

Licenses to competitors generally contain a higher royalty rate to compensate for the risk of potential lost sales and/or market share; whereas licenses to entities with an inventor/promoter relationship generally contain lower royalty rates to account for the promoter being able to distribute the product to customers that the inventor would not typically be able to reach.

I understand that RainDance and 10X were generally competitors in the market for droplet microfluidics products and that Bio-Rad and 10X are direct head-to-head competitors.

Although I understand that RainDance and 10X sold products that focused on different applications, this does not change my view that 10X and RainDance were competitors in the market for droplet microfluidics products. Jeffrey Olson, Director of Genomic Applications for RainDance, stated that RainDance considered 10X to be a competitor.³¹⁸ More specifically, Mr. Olson stated that RainDance’s contemplated “long-read” product would have been an application that would have competed with 10X.³¹⁹ Indeed, in one competitor update, RainDance considered the implications of 10X’s Chromium Genome and Chromium Exome products and provided recommendations to “at least meet the bar set by 10X” in connection with its ThunderStorm instrument.³²⁰ In a similar competitor update, RainDance addressed 10X’s Chromium Single Cell 3’ transcriptional profiling research and provided recommendations on how RainDance might “compete more effectively.”³²¹ In a December 17, 2015, business update presentation, in a section titled “New Product

³¹⁶ Deposition of Darren Link, May 2, 2017, p. 55.

³¹⁷ Deposition of Mark DiPanfilo, September 25, 2020, Exhibit 14, pp. 5-7 (BRLITC-01653412-423 at 416-418).

³¹⁸ Deposition of Jeffrey Olson, March 29, 2017, pp. 80, 109.

³¹⁹ Deposition of Jeffrey Olson, March 29, 2017, pp. 95-96.

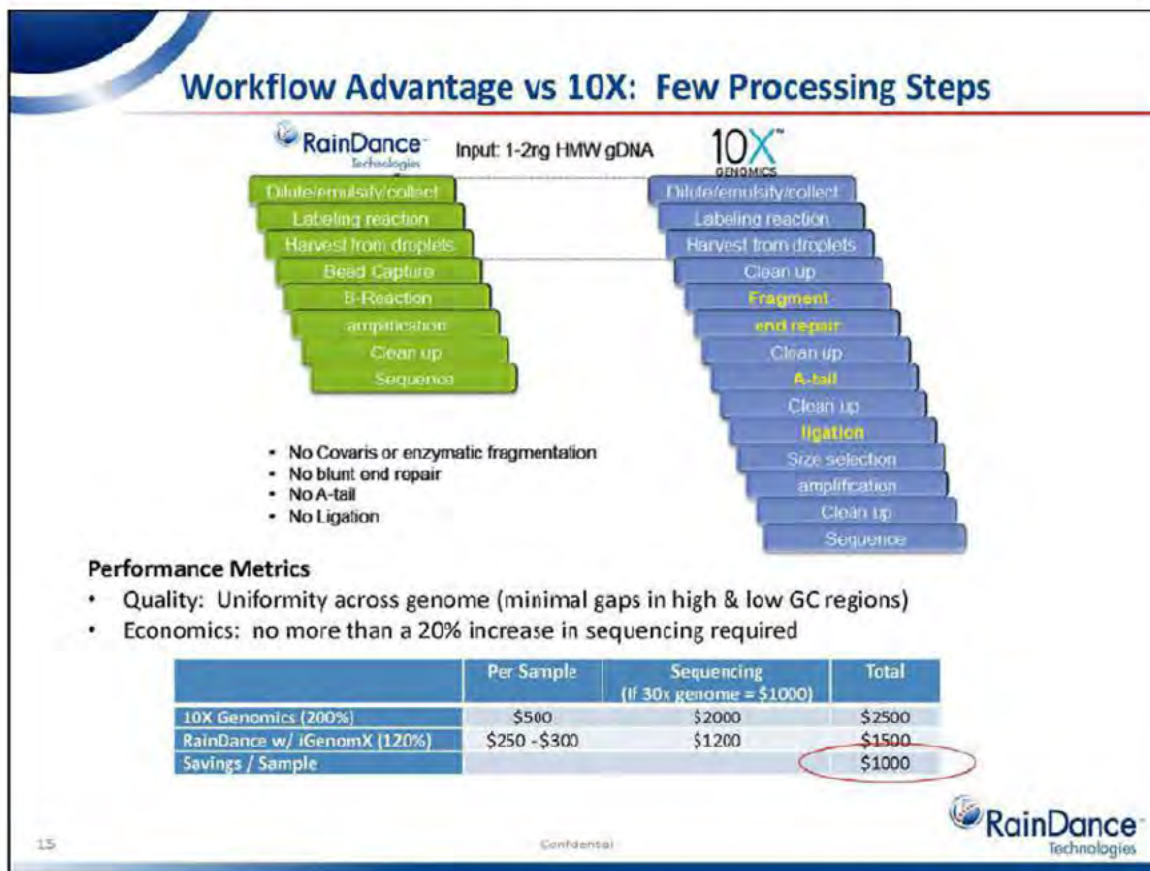
³²⁰ RDTX00103041-043 at 041.

³²¹ RDTX00103041-043 at 042.



Innovations”, RainDance explicitly compared a potential RainDance single cell product to 10X’s product, as seen in the following figure.³²²

Figure 14: RainDance Potential Product Comparison to 10X³²³



I understand that RainDance’s earliest products focused on droplet digital PCR and the preparation of sequencing libraries for targeted sequencing.³²⁴ However, Dr. Viresh Patel, Global Marketing Director, Digital Biology Group, previously testified that RainDance had products in development that were expected to compete with certain 10X products.³²⁵ I understand RainDance had in its “new technology and applications pipeline” both “long read” products and single-cell products, including the use of droplets for barcoded single cell genomics, similar to 10X, as seen in the following figures.³²⁶

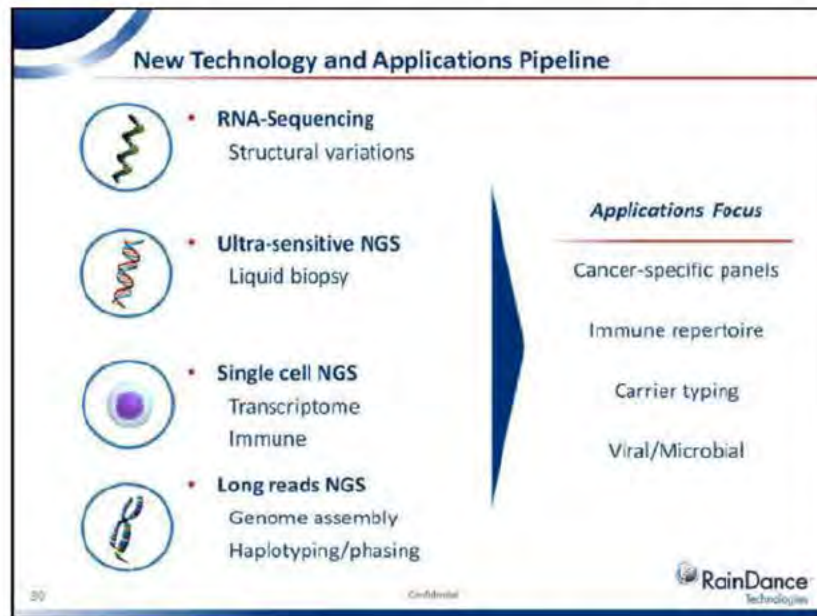
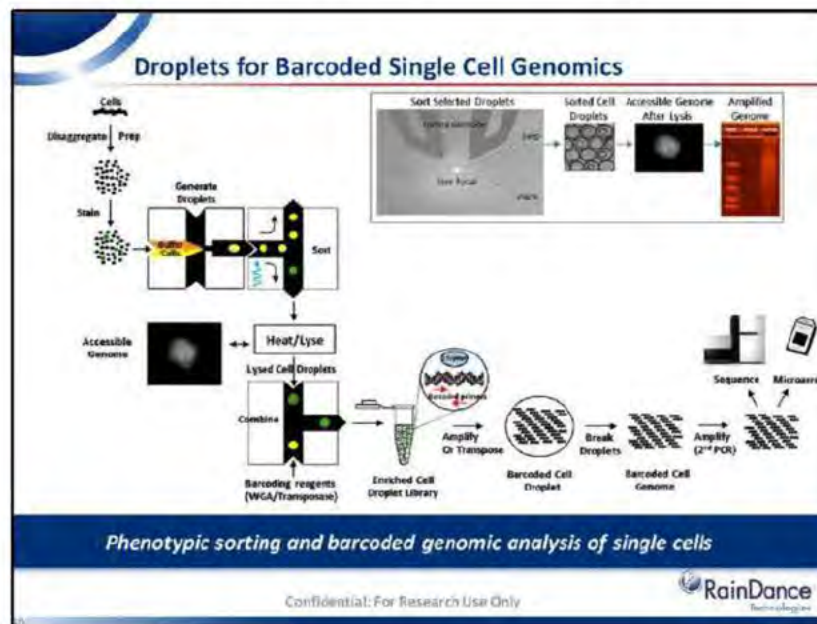
³²² RDTX00107215-243 at 220, 228-230.

³²³ RDTX00107215-243 at 230.

³²⁴ RDTX00102093-158 at 107.

³²⁵ Deposition of Dr. Viresh Patel, June 22, 2017, pp. 174-175; Deposition of John Luckey, Ph.D., September 11, 2020, pp. 63-64.

³²⁶ RDTX00102093-158 at 149, 153. See also RDTX00104077-094 at 078, 084-088; RDTX00104652-712 at 653-654; RDTX00107215-243 at 220, 230.

Figure 15: RainDance New Technology and Applications Pipeline, March 2015³²⁷Figure 16: RainDance Droplets for Barcoded Single Cell Genomics³²⁸

I understand that due to a variety of circumstances, including RainDance's acquisition by Bio-Rad, these products were never fully commercialized. However, following Bio-Rad's acquisition of RainDance in early

³²⁷ RDTX00102093-158 at 149.

³²⁸ RDTX00102093-158 at 153.



2017,³²⁹ Bio-Rad has become a direct competitor to 10X. Specifically, Bio-Rad and 10X both have products directed towards single cell sequencing applications.³³⁰

In 10X's SEC Form 10-K for the year ended December 31, 2019, 10X stated that it competes with both "established and early-stage companies that design, manufacture and market instruments, consumables and software for among applications, genomics, single cell analysis, spatial analysis and immunology."³³¹ 10X specifically identified Bio-Rad as one of these competitors in its 10-K.³³² Additionally, a 10X document titled

[REDACTED] e [REDACTED]
[REDACTED].³³³ According to a 10X document titled [REDACTED]
[REDACTED] y [REDACTED].³³⁴

[REDACTED]

Another internal 10X document, [REDACTED]
[REDACTED]³³⁵ [REDACTED] s

³²⁹ Bio-Rad Laboratories, Inc. SEC Form 10-Q for the quarter ended March 31, 2017, p. 11.

³³⁰ See, e.g., "The Illumina® Bio-Rad Single-Cell Sequencing Solution", *Bio-Rad*, <https://info.bio-rad.com/ww-ddseq.html>; "Revolutionizing Gene Expression with Single Cell RNA-seq", *10X Genomics*, <https://www.10xgenomics.com/single-cell-technology>.

³³¹ 10X Genomics, Inc., SEC Filing Form 10-K for the fiscal year ended December 31, 2019, p. 27.

³³² 10X Genomics, Inc., SEC Filing Form 10-K for the fiscal year ended December 31, 2019, p. 27.

³³³ 10X1679-000012322-332 at 322, 323 and 330.

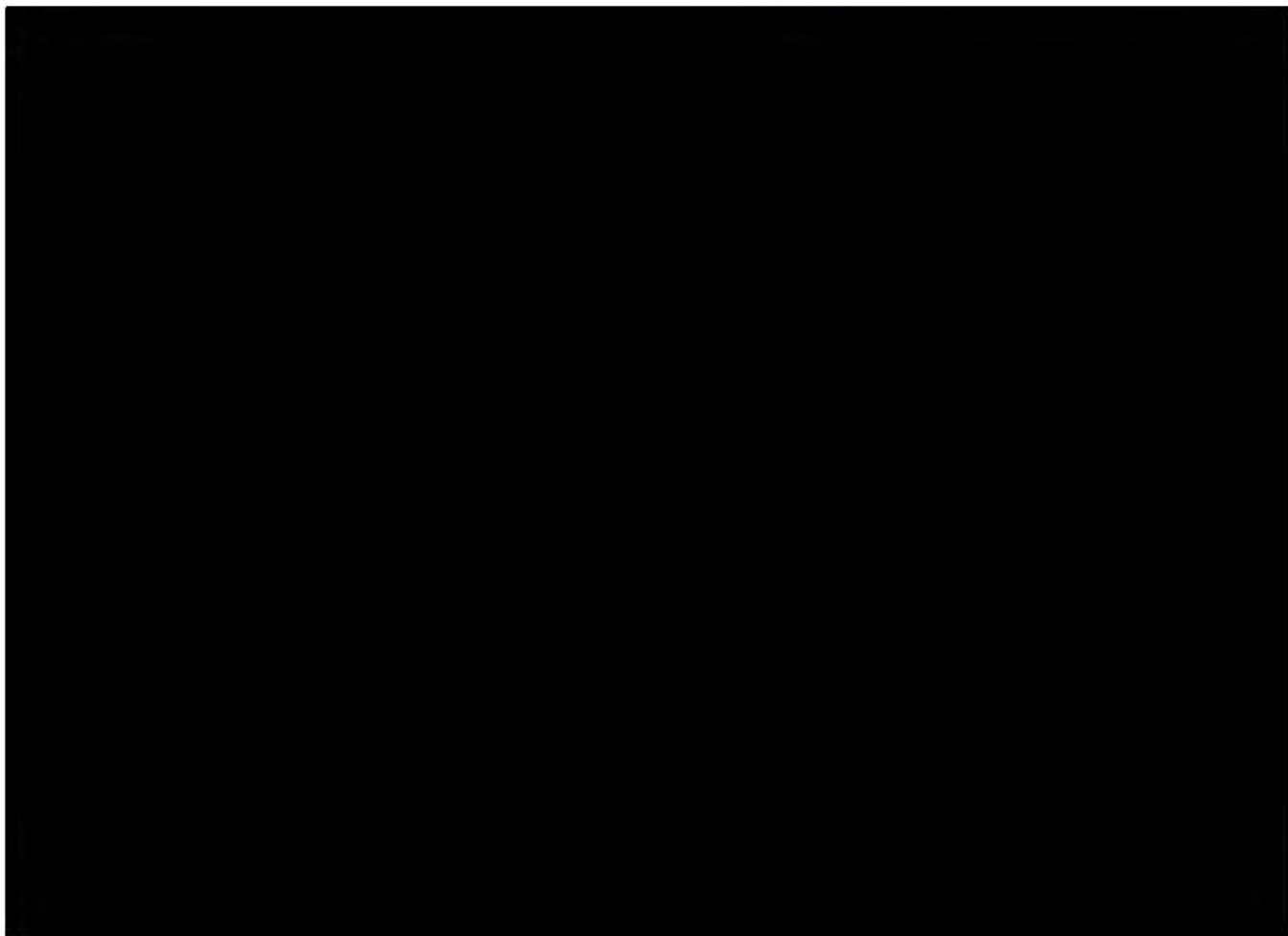
³³⁴ 10XMA00059933-987 at 933-934.

³³⁵ 10XMA00059933-987 at 937.

³³⁶ Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 8, p. 4.



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³³⁷ Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 8, p. 4.

³³⁸ Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 8, p. 4.

³³⁹ 10XMA00063393-517 at 396 and 398.

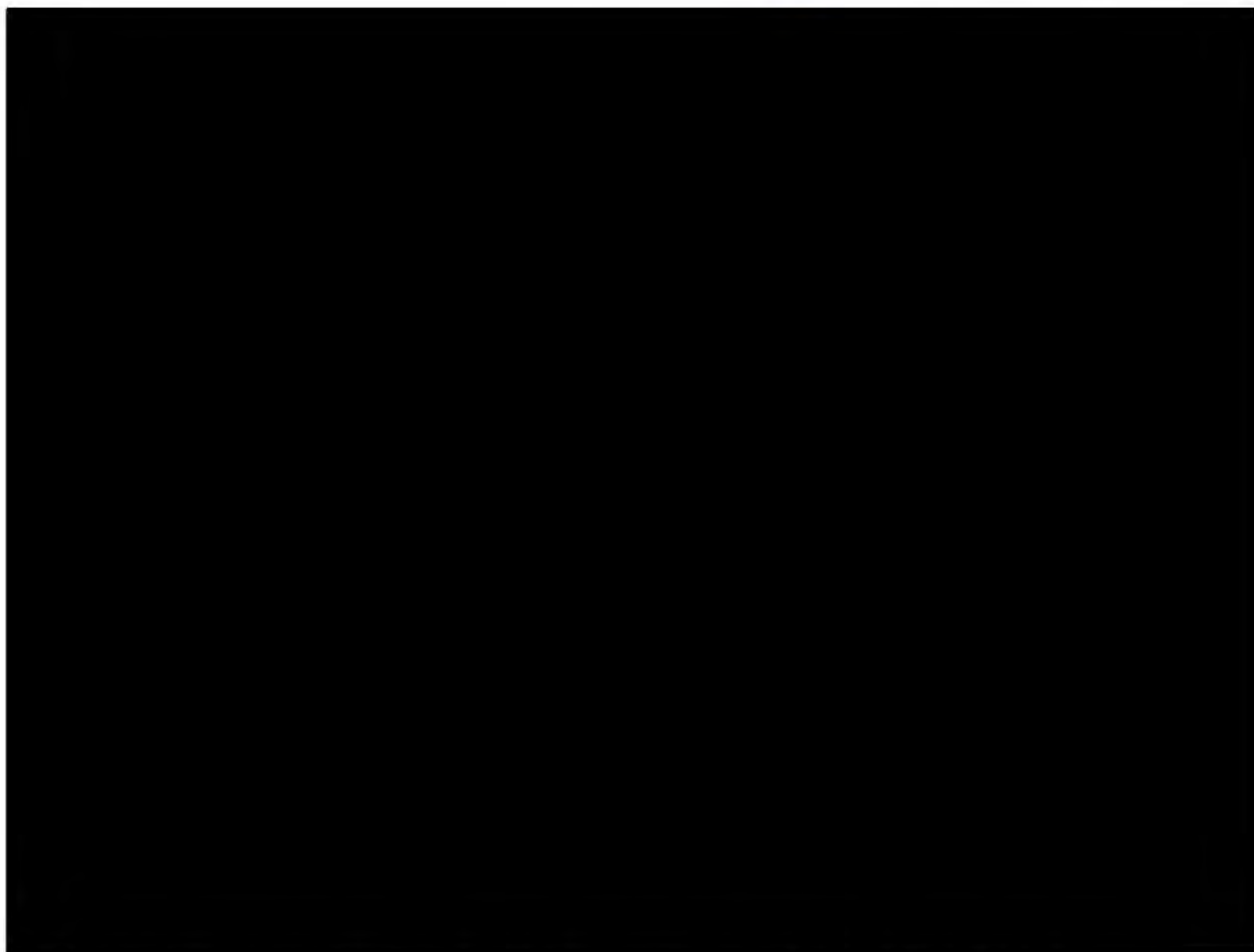
³⁴⁰ 10XMA00063393-517 at 427-431.

³⁴¹ 10XMA00063393-517 at 428-431.

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Bio-Rad similarly has considered 10X to be a direct competitor. In a May 15, 2018, Bio-Rad document titled

[REDACTED]

³⁴² 10XMA00063393-517 at 428.

³⁴³ BRLITC-01909708, slides 1, 5, and 6.



INTELLECTUAL CAPITALEQUITY

[REDACTED]

Additionally, an internal Bio-Rad presentation from June 2020 titled [REDACTED]
[REDACTED]

³⁴⁴ BRLITC-01909708, slide 5.

³⁴⁵ Deposition of Mark DiPanfilo, September 25, 2020, Exhibit 15 (BRMA00097656-751 at 656, 664).



Thus, while the initial products of RainDance and 10X focused on different applications, it was only a matter of time before RainDance/Bio-Rad would have products directed to the same applications as 10X. This is a reflection of the fact that both companies, broadly speaking, provided technology platforms for genomic analysis using microfluidic droplets and that this market was rapidly growing and evolving.

Given Bio-Rad and 10X's relationship as direct competitors, Bio-Rad would not have granted 10X a license to intellectual property in the droplet space, without receiving an appropriate royalty, due to their direct head-to-head competitive relationship.

Therefore, I find that this consideration would tend to favor the licensor in this hypothetical negotiation.

Impact on Hypothetical Negotiation: Favors Licensor

13.6 Factor #6: The effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to licensor as a generator of sales of his non-patented items; and the extent of such derivative or conveyed sales.

I am not aware of any derivative or conveyed sales of non-accused products made by 10X.

Therefore, I find that this consideration would tend to slightly favor the licensee in this hypothetical negotiation.

Impact on Hypothetical Negotiations: Slightly Favors Licensee

³⁴⁶ Deposition of Mark DiPanfilo, September 25, 2020, Exhibit 15 (BRMA00097656-751 at 664).



13.7 Factor #7: The duration of the patent and the term of the license.

Long-term non-exclusive licenses tend to have lower rates so as not to incentivize the licensee to design around the patented technology, implement an alternative technology or otherwise discontinue sales of a licensed product. Conversely, short-term non-exclusive licenses tend to have higher rates.

I have assumed that the license resulting from the hypothetical negotiation would extend through the life of the Patents-in-Suit. Assuming a hypothetical negotiation occurring during the period leading up to Q2 2019, and the expiration of the last to expire of the Patents-in-Suit occurring on or around October 8, 2024,³⁴⁷ I consider the term of the license to be approximately 5 years. I would consider this to be a medium-term license.

Therefore, I find that this consideration would tend to have a neutral influence in this hypothetical negotiation.

Impact on Hypothetical Negotiations: Neutral

13.8 Factor #8: The established profitability of the product made under the patent; its commercial success; and its current popularity.

The commercial success of the Patents-in-Suit is reflected in part by 10X's sales of the Accused Products. Since 10X began selling the Accused Products in the United States in second quarter of 2019, 10X has generated [REDACTED] in revenue on instrument sales and [REDACTED] in revenue on consumable sales of Accused Products in the United States through the second quarter of 2020.³⁴⁸ As a company, 10X has realized gross margins of [REDACTED] from April 2016 through August 2020.³⁴⁹

³⁴⁷ Calculated as 20 years after the filing date of U.S. Application No. 10/961,695. See, U.S. Patent No. 8,871,444, p. 1; U.S. Patent No. 9,919,277, p. 1.

³⁴⁸ Appendix 3.2.

³⁴⁹ Appendix 4.1; Deposition of Justin McAnear, October 7, 2020, Exhibit 8 (10XMA00197978).



[REDACTED]

While the 10X has not yet [REDACTED], [REDACTED] d [REDACTED]. Sam Ropp, Ph.D., senior vice president of global sales at 10X, claimed that 10X's [REDACTED] r [REDACTED] " [REDACTED]"³⁵¹ Within 10X's S-1 from August 2019, 10X mentioned it expects "to incur increased research and development expenses in the near term and increased inventory and other expenses related to the introduction of, and transition to, our Next GEM microfluidic chip."³⁵² While 10X does not [REDACTED], as a company focused on growth and revenue, the parties to the hypothetical negotiation would recognize 10X's significant gross margins, which are over 70%.

A 2012 report published by KPMG, titled "Profitability and Royalty Rates Across Industries: Some Preliminary Evidence," analyzed the "relationship between royalty rates and profitability" within a number of industries.³⁵³ Within that report, the authors calculated average royalty rates and gross margins for companies across 14 industries, based on 2007 data from RoyaltySources and CompuStat.³⁵⁴

³⁵⁰ Appendix 4.1; Deposition of Justin McAnear, October 7, 2020, Exhibit 8 (10XMA00197978).

³⁵¹ Deposition of Sam Ropp, Ph.D., October 1, 2020, p. 131.

³⁵² Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 4 (Form S-1, 10X Genomics, Inc., August 19, 2019, p. 17); *See also* Deposition of Justin McAnear, October 7, 2020, Exhibit 4 (10XMA00155872-6109 at 5893).

³⁵³ "Profitability and Royalty Rates Across Industries: Some Preliminary Evidence," KPMG, November 2012, pp. 1-2, <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/09/gvi-profitability.pdf>.

³⁵⁴ "Profitability and Royalty Rates Across Industries: Some Preliminary Evidence," KPMG, November 2012, pp. 6, 12, <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/09/gvi-profitability.pdf>.



The authors stated:³⁵⁵

[S]ectors that are technology-intensive and produce differentiated products generally register high gross margins and hence can afford higher royalty rates. On the other hand, the traditional sectors and the sectors that produce general purpose goods can only obtain modest or low gross margins, and hence result in lower royalty rates.

Based on the analysis above, it seems that the reported royalty rates, although defined as a fixed percentage of sales, may well reflect the structural differences in costs and profitability across industries. In other words, the licensing market is efficient, and differences in the costs and profitability across industries seem to have been factored into royalty rate negotiations.

Thus, it would be expected that the Accused Products would be subject to a relatively high royalty rate in order to practice the Patents-in-Suit, as they generate relatively high gross margins in a market sector that is technology intensive.

Therefore, I find that this consideration would tend to favor the licensor in this hypothetical negotiation.

Impact on Hypothetical Negotiation: Favors Licensor

13.9 Factor #9: The utility and advantages of the patent property over old modes or devices, if any, that had been used for working out similar results.

13.10 Factor #10: The nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention.

Factors 9 and 10 are frequently analyzed together due to their similarity and inherent overlap.

The Patents-in-Suit state that “[i]n particular, the present invention relates to methods of selecting nucleic acids encoding gene products in which the nucleic acid and the activity of the encoded gene product are linked by compartmentation, using microfluidic systems to create and/or handle the compartments.”³⁵⁶

As discussed above, I understand the ‘444 Patent and the ‘277 Patent to be related to “novel disclosures of at least pooling droplets such that they contact each other but do fuse due to the presence of a surfactant.”³⁵⁷ Bio-Rad has stated the following in its interrogatory responses in this case:³⁵⁸

The value of the contribution is crucial to performing reactions in droplets in an efficient manner. For example, without this technology, a plurality of droplets could not be thermal cycled or incubated while pooled in the same compartment. In order to carry out a reaction, therefore, additional techniques would need to be employed in which droplets are continuously circulated in a microchip, for example. This adds significant cost, time, and complexity because such chips would need to be designed with sufficient channel space to circulate droplets, the temperature would need to be controlled within the chip, and a fewer number of droplets could undergo a reaction at once due to the more limited space.

³⁵⁵ “Profitability and Royalty Rates Across Industries: Some Preliminary Evidence,” KPMG, November 2012, p. 16, <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/09/gvi-profitability.pdf>.

³⁵⁶ U.S. Patent No. 8,871,444, 1:11-16; U.S. Patent No. 9,919,277, 1:26-31.

³⁵⁷ Bio-Rad Laboratories, Inc.’s Second Supplemental Responses and Objections to 10X Genomics, Inc.’s Second Set of Interrogatories (Nos. 6-8), October 1, 2020, p. 14.

³⁵⁸ Bio-Rad Laboratories, Inc.’s Second Supplemental Responses and Objections to 10X Genomics, Inc.’s Second Set of Interrogatories (Nos. 6-8), October 1, 2020, p. 14.



Additionally, based on the Expert Report of Dr. Bruce Gale, I understand the following:³⁵⁹

The '444 and '277 Patents share a common specification that describes high-throughput microfluidic systems useful for conducting thousands or millions of separate reactions in microfluidic aqueous droplets suspended in oil. Both patents are entitled "IN VITRO EVOLUTION IN MICROFLUIDIC SYSTEMS," and disclose systems and methods for performing in vitro evolution by generating large numbers of droplets of a fluid comprising water-based (aqueous) solution containing genetic elements and reagents, allowing large numbers of separate enzymatic reactions to be conducted in parallel. See, e.g., '444 Patent at 5:20-24; '277 Patent at 5:43-47.

To keep the reactions separate, the integrity of the droplets must be maintained while the reaction is conducted. In other words, they cannot be allowed to merge. In prior art systems, droplets were physically separated from each other to prevent them from merging, for example, by separating them in microchannels. This limited the throughput of those systems, because impracticably long microchannels would be required to store many thousands or millions of droplets for the time required. The inventors realized that by generating droplets into an immiscible oil that included a fluorinated polymer surfactant, microcapsules can be formed that could contact each other without merging. These microcapsules can then be pooled together densely in a common compartment as the reaction is conducted without danger of them merging. Long channels or other means to keep the droplets physically separated to prevent them from merging is not needed.

Although developed in the context of in vitro evolution, these techniques are useful in a broad range of applications.

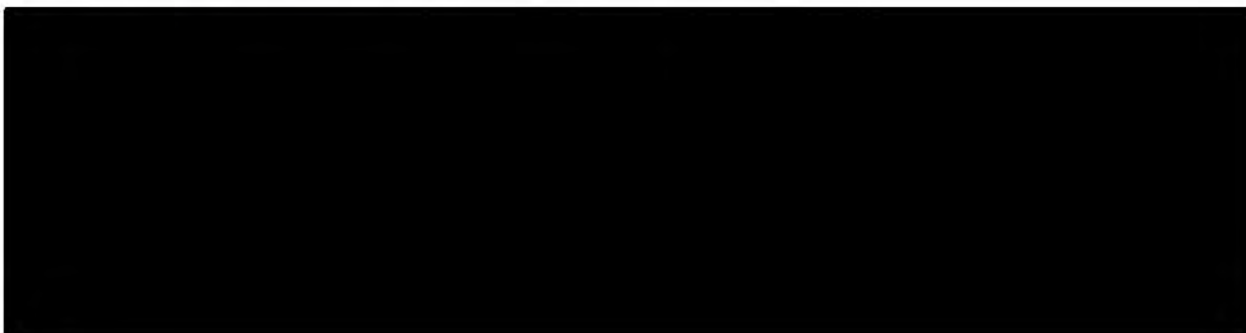
Based on my review of the Expert Report of Dr. Bruce Gale, technical expert for the Plaintiffs, it is my understanding that the technologies disclosed in the Patents-in-Suit are important and innovative improvements over the foundational intellectual property in this space.³⁶⁰

Therefore, I find that this consideration would tend to favor the licensor in this hypothetical negotiation.

Impact on Hypothetical Negotiation: Favors Licensor

13.11 Factor #11: The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.

10X has generated [REDACTED] in revenue from sales of the Accused Products from Q2 2019 through Q2 2020, with sales generally increasing quarter to quarter.³⁶¹



³⁵⁹ Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IV.B.

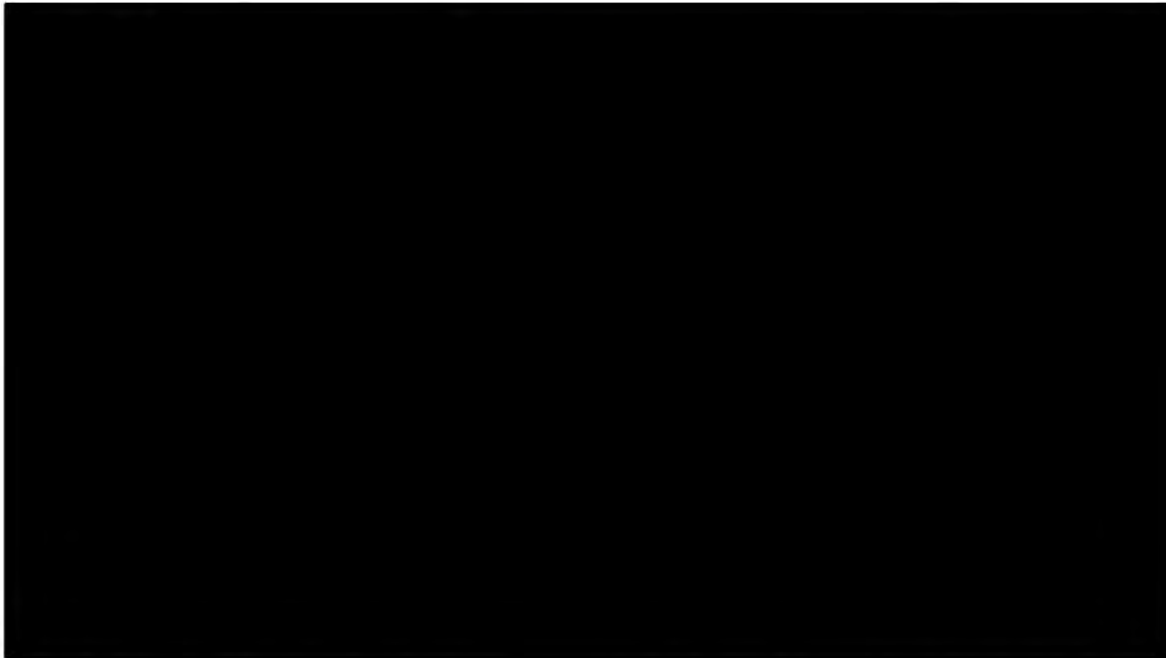
³⁶⁰ See, e.g., Expert Report of Bruce Gale, Ph.D., February 5, 2021, Section IX.B.

³⁶¹ Appendix 3.2.

³⁶² Appendix 3.2.



According to a December 2014 10X presentation, titled [REDACTED] n [REDACTED] " [REDACTED]
[REDACTED] d [REDACTED] .³⁶³



Similarly, according to a March 2016 10X presentation, titled "Roadmap Group Meeting," a little over a year later, 10X expected even greater revenue generation from 2015 through 2019, as shown in the following figure.³⁶⁵

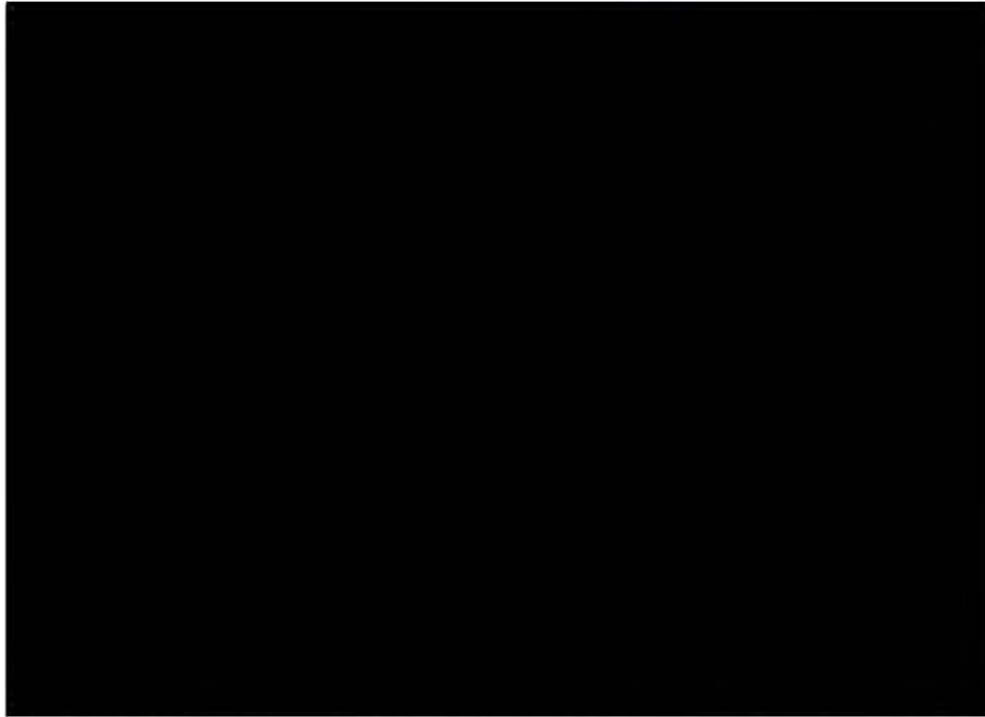
³⁶³ 10X-000143219-267 at 263.

³⁶⁴ 10X-000143219-267 at 263.

³⁶⁵ 10X-000082148, p. 3.



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Leading up to the Q2 2019 hypothetical negotiation date in this case, 10X was experiencing substantial revenue growth, with revenue growing approximately 105% from 2017 to 2018, as seen in the following figure.³⁶⁷ A market research report from DeciBio Consulting from early 2020 recognized that 10X's revenue grew from approximately \$146 million in 2018 to approximately \$246 million in 2019.³⁶⁸

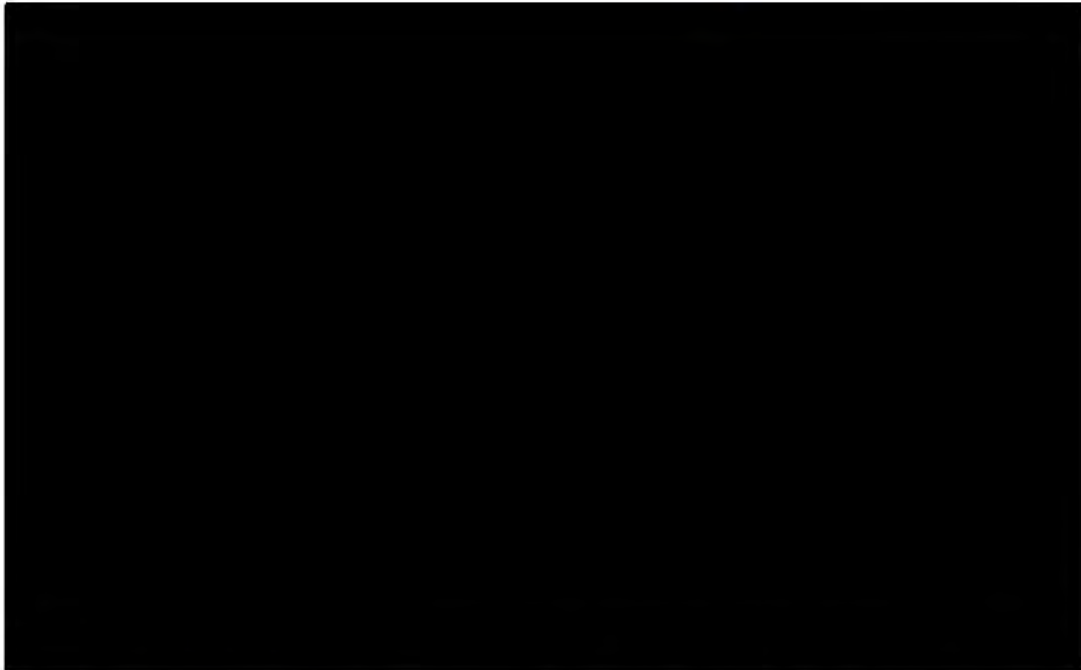
³⁶⁶ 10X-000082148, p. 3.

³⁶⁷ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00197878-914 at 904).

³⁶⁸ Deposition of Enka Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 553).



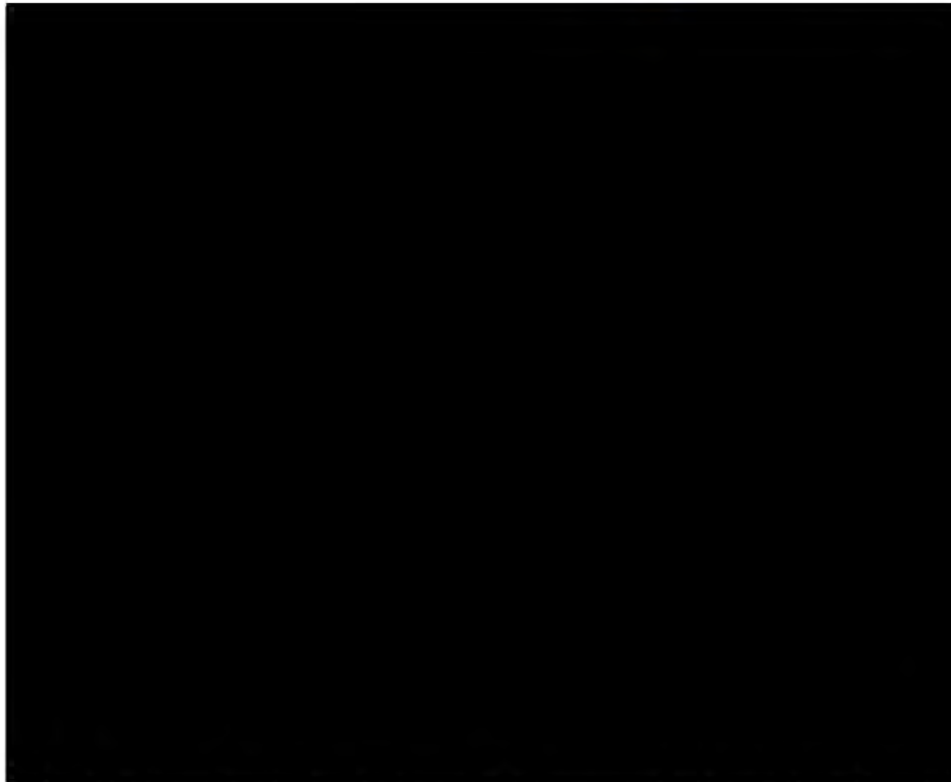
INTELLECTUAL CAPITALEQUITY



Furthermore, in the March 2016 10X presentation, titled “Roadmap Group Meeting,” 10X considered itself one of the early entrants in a new and rapidly growing market.³⁷⁰

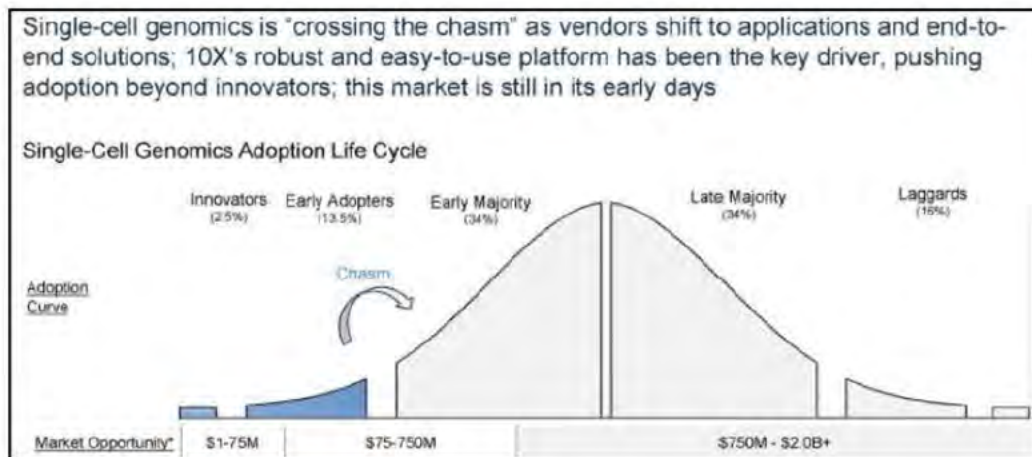
³⁶⁹ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00197878-914 at 904).

³⁷⁰ 10X-000082148, p. 14.



By April 2020, DeciBio Consulting believed that single-cell genomics had moved into the early adopters stage, as seen in the figure below from the market research report titled “Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends.”³⁷²

Figure 28: April 2020 DeciBio Report: Single-Cell Genomics Adoption Life Cycle³⁷³



³⁷¹ 10X-000082148, p. 14.

³⁷² Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 509).

³⁷³ Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 509).



Furthermore, I understand that the single cell genomics market, as a whole, is a rapidly growing market. According to an earlier version of the same DeciBio Consulting market research report, from August 2013, the single cell genomics market experienced compound annual growth of 60% from 2009 through 2012 and was forecasted to experience compound annual growth of 39% from 2012 through 2018, reaching a total market size of approximately \$540 million in 2018.³⁷⁴ The updated report from April 2020 indicated that the market experienced a compound annual growth of 30% from 2015 through 2019, reaching a total market size of approximately \$600 million in 2019.³⁷⁵ The updated report also forecasted the market to grow to approximately \$1.5 billion by 2023 with a compound annual growth rate of 23% from 2019 through 2023.³⁷⁶

Figure 29: Worldwide Single Cell Genomics Market, 2015 – 2023³⁷⁷



The 2020 DeciBio Consulting report discusses 10X's role in the market moving forward:³⁷⁸

10X Genomics' robust technology, R&D resources, and willingness to invest in developing new products that address market needs have allowed them to become a market leader. Over the next few years, 10X plans to offer targeted sequencing and enable sample pooling to reduce costs in addition to increasing throughput capability (1 M - 10 M cells) to address a broader set of market needs. As a result, 10X and is expected to continue its strong growth trajectory while building an ecosystem of platforms and applications that will represent a formidable competitive moat.

³⁷⁴ "Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends," DeciBio Consulting, LLC, August 2013, p. 27.

³⁷⁵ Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 508).

³⁷⁶ Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 508).

³⁷⁷ Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 508).

³⁷⁸ Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 511).



In a September 2019 Investor Presentation, 10X indicated that the annual spend in the global life science research tools market is \$50 billion.³⁷⁹ 10X believed that \$13 billion of that market includes applications where 10X could offer immediate alternatives or is complementary.³⁸⁰

Figure 30: Global Life Sciences Research Tools Opportunity³⁸¹



Within this rapidly growing market, 10X recognizes the importance of its Next GEM product. Within the September 2019 Investor Presentation, 10X noted the large market opportunity for its chromium instruments compared to the already saturated real-time PCR market by stating, “[w]e believe enabling many diverse applications may result in our instruments being more ubiquitous than RT-PCR.”³⁸²

³⁷⁹ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 898).

³⁸⁰ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 898).

³⁸¹ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 898).

³⁸² Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 897).

Figure 31: Underpenetrated Market: 10X Chromium Instruments³⁸³

Justin McAnear, CFO at 10X, further emphasized the large market opportunity when describing the above slide in his deposition testimony:³⁸⁴

Chromium™ is a product that should be on every lab bench. And so this is just using an example of a product that's on every lab bench.

And so if there's 50,000, 100,000 biology labs out there, and at this time, if we've only sold 1250 instruments, we believe that the product has the potential to be on every lab bench, then there's still a lot more product to go sell.

_____, d _____, _____, 10X knows their "business depends significantly on the success of [their] Next GEM microfluidic chip," as stated in their S-1 from August 2019.³⁸⁶ 10X has also stated that its "future success is dependent upon [its] ability to increase penetration in [its] existing markets."³⁸⁷ More specifically, within its S-1 filed with the SEC, 10X said "[w]e have dedicated significant resources to designing and manufacturing our new Next GEM microfluidic chip, which uses a microfluidic architecture with fundamentally different physics from our GEM microfluidic chip... We plan to gradually phase out our GEM microfluidic chips and anticipate that our Chromium products utilizing our Next GEM microfluidic chips will become an increasing percentage of our sales and will constitute substantially all of our Chromium consumables sales by the end of 2020."³⁸⁸

Therefore, I find that this consideration would tend to favor the licensor in this hypothetical negotiation.

³⁸³ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 897).

³⁸⁴ Deposition of Justin McAnear, October 7, 2020, p. 103 and Exhibit 6 (10XMA00917878-914 at 897).

³⁸⁵ Deposition of Justin McAnear, October 7, 2020, Exhibit 6 (10XMA00917878-914 at 903). *See also*, Deposition of Erika Trauzzi, October 8, 2020, Exhibit 5 (BRMA00115497-642 at 553).

³⁸⁶ Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 4 (Form S-1, 10X Genomics, Inc., August 19, 2019, p. 16); *See also* Deposition of Justin McAnear, October 7, 2020, Exhibit 4 (10XMA00155872-6109 at 5892).

³⁸⁷ Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 4 (Form S-1, 10X Genomics, Inc., August 19, 2019, p. 19); *See also* Deposition of Justin McAnear, October 7, 2020, p. 79 and Exhibit 4 (10XMA00155872-6109 at 5895).

³⁸⁸ Deposition of Sam Ropp, Ph.D., October 1, 2020, Exhibit 4 (Form S-1, 10X Genomics, Inc., August 19, 2019, p. 16); *See also* Deposition of Justin McAnear, October 7, 2020, Exhibit 4 (10XMA00155872-6109 at 5892).



Impact on Hypothetical Negotiation: Favors Licensor

13.12 Factor #12: The portion of the profit or the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.

Similar to Factors #1 and #2, Factor #12 also relates to the Market Approach and considers licenses and licensing practices within the relevant industry.

As above, I have considered relevant agreements in my use of the Market Approach. In particular, I have considered that the Applera/Bio-Rad License, the Caliper/RainDance License, and the Applied BioSystem/QuantaLife License are indicative of a reasonable royalty rate of 10% to 15% in the context of the hypothetical negotiation in this case. Therefore, the impact of this factor is reflected in my quantitative analysis described above in Section 12.1.

Impact on Hypothetical Negotiations: Considered in Quantitative Analysis

13.13 Factor #13: The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.

Factor 13 extends the analysis performed in factors 8 and 11 and relates to the portion of the realizable profit that should be attributed to non-patented elements. Analysis of this factor is sometimes related to the Income Approach in the context of intellectual property valuation, which I have addressed above in Section 12.2. As discussed above, the Income Approach attempts to value an asset by measuring the benefits derived from use of the asset. When used in the context of an intellectual property licensing situation, these benefits are then split in some fashion between the licensee and licensor. The split has the twin effects of giving the licensor reasonable compensation for the use of its intellectual property, and the licensee reasonable compensation for assuming the business risks associated with developing, manufacturing, promoting, and selling the product that embodies the particular technology.

In apportioning the realizable profit that should be credited to the Patents-in-Suit, I have considered 10X's reputation, its promotional efforts, and the normal business risks incurred by 10X, as well as its considerable know-how related to the Accused Products. I also recognize that the Accused Products have non-infringing aspects.

However, as discussed above in *Georgia-Pacific* Factors #9 and #10, the Patents-in-Suit also provide significant advantages and are integral and valuable to the 10X Accused Products.

I note that this apportionment between the contributions to the Accused Products from the Patents-in-Suit and the contributions to the Accused Products from the accused infringer would have been considered by the parties to the various agreements referenced throughout this report. As a result, this apportionment has largely already been taken into consideration through the selection of the quantitative royalty indicators I have referenced.

In order to be conservative and give full credit to 10X for its contributions, however, I find that this factor would tend to favor 10X in the hypothetical negotiations.

Impact on Hypothetical Negotiations: Favors Licensee



13.14 Factor #14: The opinion testimony of qualified experts.

In connection with my work I have considered the Expert Report of Dr. Bruce Gale, technical expert for Plaintiffs. The extent to which I have considered Dr. Gale's opinions is reflected throughout my report. I reserve the right to supplement my opinions upon the review of other expert reports and testimony that are provided after the date of this report.

Impact on Hypothetical Negotiations: Considered Throughout My Report

13.15 Factor #15: The royalty that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee – who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention – would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.

Factor #15 describes the integration of the other factors within the willing buyer/willing seller hypothetical negotiation framework. As the name implies, the parties in the negotiation are presumed to be willing. They both seek, as businessmen, to reach an agreement. Another key factor in this hypothetical negotiation is that both parties are assumed to "lay their cards on the table" so that each has an understanding of the other's position. Lastly, the hypothetical negotiation considers facts that are known or knowable at the time and presumes that the Patents-in-Suit are valid and infringed by the Accused Products.

Some of the considerations discussed throughout this report which would frame the hypothetical negotiation are summarized below:

- The parties would have considered the adjusted royalty rates from the comparable licenses discussed above in the Market Approach:
 - 10% to 15% indicated by the Caliper/RainDance License, the Applied BioSystem/QuantaLife License, and the Applera/Bio-Rad License;
 - 4% to 6% indicated as a floor by the MRC/RainDance License and the Harvard/RainDance License to the Patents-in-Suit; and
 - [REDACTED]
- The parties would have considered Bio-Rad and 10X's relationship as direct head-to-head competitors.
- The parties would have considered 10X's significant profit margins.
- The parties would have considered 10X's rapidly increasing revenues in a burgeoning market.
- The parties would have considered the technical utility and advantages of the Patents-in-Suit and 10X's use of the technology in the Accused Product.



- The parties would have considered that 10X has generated total revenue of [REDACTED] on instrument sales and [REDACTED] on consumable sales of Accused Products in the United States through the second quarter of 2020.
- The parties would have considered the relative contributions to the Accused Products of the Patents-in-Suit and of 10X.

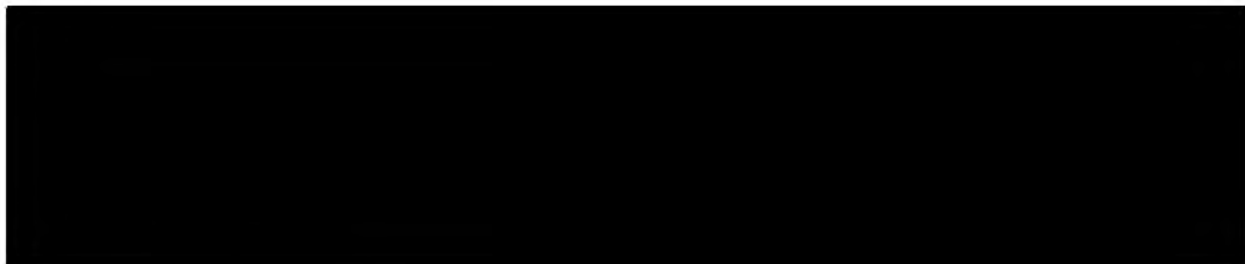
In consideration of the *Georgia-Pacific* Factors, it is my opinion that Bio-Rad would be in a relatively stronger bargaining position than 10X in the hypothetical negotiation in this case. As a result, the hypothetical negotiation would result in a reasonable royalty rate toward the high end of the quantitative indicators discussed above.

Based on the foregoing analysis, it is my opinion that the parties to the hypothetical negotiation would conservatively agree to a royalty rate of 15% of accused revenue for 10X's use of any or all of the Patents-in-Suit in connection with the Accused Products.

14. DETERMINATION OF REASONABLE ROYALTY COMPENSATION

In order to calculate the appropriate amount of reasonable royalty damages due to Plaintiffs for 10X's use of the Patents-in-Suit in connection with the Accused Products, I have applied the royalty rate determined above to the accused revenue calculated in Section 10, as shown in the following figure.

Figure 32: Reasonable Royalty Damages³⁸⁹



15. PREJUDGMENT INTEREST

From an economic analysis standpoint, a time-value-of-money award would be necessary to compensate Plaintiffs for the loss of use of funds during the damages period. However, I understand that an award of prejudgment interest is a legal matter and that the Court has substantial discretion in determining the interest rate and compounding method to be awarded. I am prepared to submit a prejudgment interest calculation if requested by the Court.

³⁸⁹ Appendix 3.1.



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16. SIGNATURE

Respectfully submitted,

A handwritten signature in black ink, appearing to read "James E. Malackowski", written over a horizontal line.

James E. Malackowski

February 5, 2021

Date

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Appendix 1



February 5, 2021

JAMES E. MALACKOWSKI CURRICULUM VITAE

James E. Malackowski is the Co-Founder and Chief Executive Officer of Ocean Tomo, LLC, the Intellectual Capital Merchant BancTM firm providing industry leading financial products and services related to intellectual property including financial expert testimony, valuation, strategy consulting, patent analytics, investment management and transaction brokerage. Ocean Tomo assists clients – corporations, law firms, governments and institutional investors – in realizing Intellectual Capital Equity[®] value broadly defined. Subsidiaries of Ocean Tomo include Ocean Tomo Investments Group, LLC, a registered broker dealer, and Ocean Tomo International (HK) Ltd.

Mr. Malackowski is a founding and continuous member of the IP Hall of Fame Academy. He has been recognized annually since 2007 by leading industry publications as one of the ‘World’s Leading IP Strategists’. Significantly, Mr. Malackowski is listed among “50 Under 45” by *IP Law & Business*TM, included in the *National Law Journal*’s inaugural list of 50 Intellectual Property Trailblazers & Pioneers; and, named as one of “The Most Influential People in IP” by *Managing Intellectual Property*TM. Mr. Malackowski was named as 1 of 50 individuals, companies and institutions that framed the first 50 issues of *IAM Magazine* as well as 1 of 60 leading global Economics Expert Witnesses by the same publication in 2014. In 2011 Mr. Malackowski was selected by the World Economic Forum as one of less than twenty members of the Network of Global Agenda Councils to focus on questions of IP policy. In 2013 he was inducted into the Chicago Area Entrepreneurship Hall of Fame by the Institute for Entrepreneurial Studies at the University of Illinois at Chicago College of Business Administration. In 2018, Mr. Malackowski joined the Standards Development Organization Board of the Licensing Executives Society (USA & Canada), Inc. governing voluntary consensus-based professional practices that are guided in their development by the American National Standards Institute’s (ANSI’s) Essential Requirements. LES standards are designed to encourage and teach consensus practices in many of the business process aspects of intellectual capital management.

On more than fifty occasions, Mr. Malackowski has served as an expert in U.S. Federal Court, U.S. Bankruptcy Court, State Court, Court of Chancery, the Ontario Superior Court of Justice and global arbitrations on questions relating to intellectual property economics including the subject of valuation, reasonable royalty, lost profits, price erosion, commercial success, corrective advertising, creditor allocations, Hatch Waxman Act market exclusivity, business significance of licensing terms including RAND obligations, venture financing including expected risk / return, and equities of a potential injunction. Mr. Malackowski’s experience extends to matters of general business valuation and commercial disputes, both domestic and foreign. Mr. Malackowski has publicly addressed policy issues affecting international trade and has provided expert opinions concerning antidumping and countervailing duties imposed by the U.S. Department of Commerce as well as testimony on domestic industry, bond and remedies before the International Trade Commission.

Mr. Malackowski has substantial experience as a Board Director for leading technology corporations and research organizations as well as companies with critical brand management issues. He is Past President of The Licensing Executives Society International, Inc. as well as its largest chapter, LES USA & Canada, Inc. Mr. Malackowski focuses his non-for-profit efforts with organizations leveraging science and innovation for the benefit of children, including those located in lesser developed countries. He has served since 2002 as a Trustee or Director of the National Inventors Hall of Fame, Inc., an organization providing summer enrichment programs for more than 100,000 students annually. For more than ten years Mr.



Malackowski served as a Director of Chicago's Stanley Marne Children's Research Institute, advancing the organization's agenda to measure and report the impact of its pediatric research.

Mr. Malackowski is a frequent speaker on emerging technology markets and related financial measures. He has addressed mass media audiences including Bloomberg Morning Call, Bloomberg Evening Market Pulse, Bloomberg Final Word, CNBC Closing Bell, CNBC On the Money, CNBC Street Signs, CNBC World Wide Exchange, CBS News Radio and Fox Business National Television as well as other recognized news-based internet video channels. Mr. Malackowski is a current or past judge for the Illinois Technology Association's CityLIGHTS™ Innovation Awards program, the University of Notre Dame McCloskey Venture Competition, 1st Source Faculty Commercialization Awards, and PBS's *Everyday Edisons*.

As an inventor, Mr. Malackowski has more than twenty issued U.S. patents. He is a frequent instructor for graduate studies on IP management and markets and a Summa Cum Laude graduate of the University of Notre Dame majoring in accountancy and philosophy. Mr. Malackowski is Certified/Accredited in Financial Forensics, Business Valuation and Blockchain Fundamentals. He is a Certified Licensing Professional and a Registered Certified Public Accountant in the State of Illinois. Mr. Malackowski has been certified to receive United States Sensitive Security Information (SSI) as governed by Title 49 Code of Federal Regulations.

EMPLOYMENT HISTORY

Co-Founder and Chief Executive Officer, *Ocean Tomo, LLC*, July 1, 2003 to present. Mr. Malackowski is responsible for all aspects of the firm's merchant banking practice. Ocean Tomo, LLC was sold to Bow River Capital in April of 2020.

President and Chief Executive Officer, *IP Equity Management, LLC*, doing business as Duff & Phelps Capital Partners, March 1, 2002 to June 30, 2003. The firm's intellectual property structured finance efforts were consolidated with Ocean Tomo on July 1, 2003.

Principal and Founder, *VIGIC Services, LLC*, July 1, 2000 to February 28, 2002. Mr. Malackowski identified and evaluated intellectual capital based private equity investment opportunities and served as an advisor to four completed transactions.

Principal and co-Founder, *IPC Group LLC*, August 1, 1988 – June 30, 2000. Mr. Malackowski also held the offices of President and CEO and was a Board member / chairman of the firm. Along with four co-founders, Mr. Malackowski grew IPC Group to become the largest professional services firm specializing in intellectual property valuation and strategy consulting. IPC Group was sold in 1999 later changing its name to InteCap.

Executive Consultant, *Peterson & Co. Consulting*, Chicago, June 3, 1985 – July 30, 1988. Mr. Malackowski began with Peterson as a Staff Consultant and was the firm's quickest promotion to both Senior Consultant and Executive Consultant. Mr. Malackowski helped to establish the firm's intellectual property litigation and valuation practice. Peterson & Co. was sold to Saatchi & Saatchi PLC in 1988.



**NON-PROFIT AND
ASSOCIATION
EXPERIENCE**

Mr. Malackowski has been active in The Licensing Executives Society (LES) locally, nationally and internationally. LES is the premiere global professional association of technology transfer and intellectual asset management professionals with more than 9,000 members in more than 32 countries.

Mr. Malackowski is Past President of the Licensing Executives Society International, LLC, where his experience included the following positions:

- Director, LES Standards Development Organization (2018 – present)
- Chair, Past President's Council (2012 – 2013)
- President and Member of the Board (2011 - 2012)
- President Elect and Member of the Board (2010 - 2011)
- Secretary and Member of the Board (2007 - 2010)
- Member and Permanent Alternate, Board of Delegates (1992 - 2005)
- Past Chair, Membership, Investment, Education, Long-range Planning and Global Technology Impact Forum Committees.

Mr. Malackowski's term as President of LESI has been recognized for creation of the LESI Global Technology Impact Forum and concurrent Invent For Humanity™ Technology Transfer Exchange Fair; formalizing the National Presidents' Council; establishing the position of a permanent Executive Director; and, restructuring the leadership of LESI committees utilizing a Chair, Past Chair, Chair Elect ladder combined with functional responsibilities for committee Vice Chairs. This later organizational stamp is based largely on Mr. Malackowski's experience as President of LES USA & Canada described below where he led a restructuring of the Board from a regional to a functional focus for each officer and Trustee. As with his tenure at his national Society discussed below, Mr. Malackowski led a financial turn-around returning LESI to positive cash flow following its' only two years of loss.

Mr. Malackowski is also Past President of The Licensing Executives Society (USA and Canada), Inc. where he held numerous offices in the organization including:

- President and Member of the Board (2001 – 2002)
- International Vice President and Member of the Board (2000)
- Treasurer and Member of the Board (1996 – 1999)
- Trustee and Member of the Board (1992 – 1996)
- Chair, Annual Meeting in Miami Beach (1998) and the Summer Meeting in Chicago (1997)

Mr. Malackowski presided over a restructuring of the LES USA & Canada Board and a financial turn-around returning the organization to positive cash flow following its only two years of loss to such date. Mr. Malackowski is the youngest President to hold office at LES USA & Canada as well as at LES International.

In 2007, Mr. Malackowski was the Founding Chair of the Board of Governors for what is now Certified Licensing Professionals, Inc., administrator of the Certified Licensing Professional (CLP) program for professionals in the fields of



licensing, business development and commercialization of intellectual property. More than 1,000 individuals involved in patenting, marketing, valuation, IP law, negotiation, and intellectual asset management have earned the CLP certification. CLP, Inc. is a 501(c)(6) organization whose mission is to elevate the licensing profession through knowledge and standards.

In 2018 Mr. Malackowski joined the Standards Development Organization Board of LES USA & Canada. LES standards are voluntary consensus-based professional practices that are guided in their development by the "American National Standards Institute's (ANSI's) Essential Requirements." ANSI is the unique accrediting agency in the United States for voluntary consensus standards development organizations. LES is an accredited ANSI Standards Developer and as such guarantees its constituents that its standards will be developed in a fair, balanced, consensus-based, due process driven way. LES standards are designed to encourage and teach consensus practices in many of the business process aspects of intellectual capital management and, where appropriate, offer enterprises the opportunity to differentiate themselves based on their use of these consensus professional practices, through certification of conformance to those standards.

Mr. Malackowski extends significant time to non-profit activities directed towards a further understanding of the economic importance of innovation and intellectual property, in both the United States and developing economies. These efforts include:

- Founding Board Member and member of the Executive Committee, United Stages Intellectual Property Alliance (USIPA), (2020 -)
- Judge, University of Notre Dame McCloskey Venture Competition (2019 -)
- Advisory Council, University of Chicago, Pritzker School of Molecular Engineering (2018 -)
- Judge, Illinois Technology Association, CityLIGHTS™ Innovation Awards (2013 -)
- Member, World Economic Forum Network of Global Agenda Councils (2011 - 2012)
- Director, International Intellectual Property Institute, Washington D.C., (2002 - 2007)
- Resident Advisor, U.S. Information Agency, (1999)
- Resident Advisor, U.S. Department of Commerce Commercial Law and Development Program (1997)
- Founder and Chairman, The Center for Applied Innovation, Inc. (2004 -)

In addition to his University instruction described herein, Mr. Malackowski focuses his non-for-profit efforts with those organizations leveraging science and innovation for the benefit of children.

- Director, Children's Research Fund (2013); Co-Chair Annual Fund Campaign (2013)
- Director, National Inventors Hall of Fame, Inc. (NIHF) including service as a Member, Trustee or Director of related subsidiaries and Board Committees (2001 - 2019). The NIHF provides summer enrichment programs for more than 160,000 students annually including [Camp](#)



Invention™ for kids in grades 1-6 (and their parents and teachers); Collegiate Inventors Competition™ for college students (and their mentors); and, Chub Invention™ for kids in grades 1-6 (and their parents and teachers). NIHF provides more than 20,000 camp scholarships annually for children in financial need.

- President's Council, Chicago Museum of Science and Industry (2005 - 2011) including participation on the Education Advisory Committee (2007 - 2009) and the Alternative Revenue Committee (2008 - 2011)
- Director, Stanley Mame Children's Research Institute (2009 - 2020) including Chair of the Board's Technology Transfer Committee (2014 - 2020) and the Strategic Planning Resources Committee (2011 - 2012). Mr. Malackowski is recognized for initiating the development of a program to measure and track innovation metrics relevant to the Institute.

Mr. Malackowski was the Founder of the Center for Applied Innovation, a Chicago based non-for-profit with both local and international programs. CAI was created to manage education, public policy outreach and related economic activity around applied technology and intellectual property (IP) rights in the State of Illinois and around the world.

- CAI created and patented the first commoditized contract for technology licensing, the Unit License Right™. This innovation has been licensed to the Chicago-based Intellectual Property Exchange International.
- Under Mr. Malackowski's continued leadership as Chairman, CAI organizes the Invent for Humanity™ Technology Transfer Exchange Fair (InventforHumanity.org) launched in January, 2012, in Geneva, Switzerland. Invent for Humanity showcases field-ready, sustainable innovations, known as "appropriate technologies", leveraging the experience of licensing professionals to match and structure the actual transfer of such technology to meet recognized needs of emerging market economies.

Mr. Malackowski's association and non-profit activities are informed in part by his participation in the Harvard Business School Executive Education Program on Governing for Nonprofit Excellence, November 2000. Mr. Malackowski's Board service is informed by his participation at the Rock Center Corporate Governance Directors College for Venture-Backed Company Directors, Stanford University, March 2016.

RELATED OFFICES

Berg, LLC, Member, Council of Advisors, Senior Advisor, Intellectual Property Licensing & Innovation (2012 - 2015)

The Copyright Hub, LLC d/b/a 3Discovered, Founder. The company was formed as a collaborative venture between Ocean Tomo, LLC and Liberty Advisor Group in 2013. 3Discovered is a current portfolio company of US-based venture capital firm AITV. Mr. Malackowski served as Chairman of the company through September 2016. (2103 - 2106)

Curious Networks, Inc., Director, (1999 - 2000), Co-Chair of the Board's Strategic Partnership Committee. Mr. Malackowski led the company's first and



second round of venture funding.

ewireless, Inc. (f/k/a JEMAN Holdings, Inc. d/b/a Cellular Linking), Director, (1995-1999, 2000-2002)

Ford Global Technologies, Inc., Ford Motor Company, Director (1997 - 2001). Mr. Malackowski advised Ford Motor Company on the original business strategy which led to the formation of FGTI. FGTI was the largest known technology management company in the United States during Mr. Malackowski's term.

Infocast, Corporation (OTC BB: IFCC.OB), Director (2001-2002). Member of the Audit and Compensation Committees. Mr. Malackowski led the transition of the company's senior management team and continued U.S. based funding efforts.

Insignis, Inc., Director (2000 - 2002) Mr. Malackowski led the company's first round of venture funding. Insignis is a Chicago based provider of institutional financial data services.

The Intellectual Property Coin Group, Inc., Chairman and Co-Founder (2018 -). The company is a planned Ethereum based blockchain platform and related cryptocurrency designed to facilitate IP based transactions. See www.IPcoinGroup.com.

The Intellectual Property Exchange International, Inc. Mr. Malackowski was the founder of the company guiding initial product development of IPXI and recruitment of executive management. In 2011, IPXI was funded by an industry consortium including the Chicago Board Options Exchange. Mr. Malackowski was the Chair or Co-Chair of the Exchange from inception to February 26, 2015.

JEMAN Technologies, Inc., Founder. (1995 - 1999). Mr. Malackowski led the company's efforts to develop new technologies related to wireless direct response services. JEMAN was sold to ewireless, Inc. in 1999 as part of a venture transaction funded by Bedrock Capital Partners and Tredegar Investments.

Outlier Solutions, Inc., Advisor (2019 -)

Solutionary, Inc., Director (2000 - 2013). Arranged and advised on Solutionary's asset acquisition of S3 Networks effective August 31, 2001 and sale to strategic buyer in 2013. Member of the Board's Compensation Committee.

Sendle, Pty, Advisor (2012 -). See www.Sendle.com.

422, Inc., Director (2002 - 2003)



EDUCATION AND CERTIFICATION

University of Notre Dame, B.B.A., Bachelor of Business Administration with majors in Accountancy and Philosophy. Graduated Summa Cum Laude, 1985.

Registered Certified Public Accountant, State of Illinois Certificate Number 41,187 issued January 16, 1986; License No. 239.007831; Expires September 30, 2021.

Certified Licensing Professional, Certificate Number 1606 issued July 1, 2008; Expires June 30, 2021.

Certified in Financial Forensics, CFF™, American Institute of Certified Public Accountants, Certificate Number 391 issued July 31, 2008; Expires July 31, 2021.

Accredited in Business Valuation, ABV™, American Institute of Certified Public Accountants, Certificate Number 4278 issued May 31, 2014; Expires July 31, 2021.

Accredited in Blockchain Fundamentals for Accounting and Finance Professionals, American Institute of Certified Public Accountants, Certificate Number 15860970 issued December 17, 2018; Expires December 31, 2020.

UNIVERSITY INSTRUCTION

John Marshall Law School, Intellectual Property Damages (1992 - 1994)

DePaul University, Intellectual Property Entrepreneurial Finance (2003)

The George Washington University Law School, Intellectual Property Management (2004)

The University of Chicago Graduate School of Business:

- Intellectual Property Investment (2004 - 2006)
- Entrepreneurial Discovery, MBA Course 34705, Adjunct Professors Mark Tebbe and Brian Coe (Fall 2014 - 2015)

Indiana University Kelly School of Business, Intellectual Property Finance (2005)

University of Notre Dame, Mendoza College of Business, Adjunct Instructor:

- MBA Interterm Intensives, Intellectual Property Based Market Transactions, Valuation and Trading (Fall 2006, Fall 2008)
- MBA Executive Program, Course MBAE 70639, Intellectual Property, (Spring Semester 2008)
- MBA Program, Litigation Support and Valuation (Spring 2009)
- Notre Dame Law School, Advanced Trial Advocacy, LAW 75713-10 (Spring 2017)
- Member, Venture Builder Community Advisory Board (2019 -)



University of California at Berkeley Haas School of Business, Innovation Markets (2008)

Chicago-Kent College of Law, Adjunct Professor of Law, IP Financial Markets and Legal Principles (Fall 2008)

Rutgers Professional Science Master's Program, Fundamentals of Intellectual Property (Summer 2011)

Northwestern University Kellogg School of Management, Adjunct Instructor:

- MGMT 441, Intellectual Property Management, Clinical Professor James G. Conley (Fall 2012, Spring 2013 - 2017)
- DSGN 460, Innovation in Context, McCormick Engineering School (Spring 2017)

University of Texas McCombs School of Business, MBA Course: Open Innovation, Professor Sirkka Jarvenpaa (Spring 2013)

University of Arizona, James E. Rogers College of Law, Advisor, Intellectual Property & Entrepreneurship Clinic (2017 -)

- IP Valuation (Spring 2017)
- IP Valuation for Commercial Transactions (Spring 2019)

University of Southern California, Lloyd Greif Center for Entrepreneurial Studies at the Marshall School of Business, Entrepreneurs Guide to Intellectual Property, Professor Luke L. Dauchot, JFF 322 (Fall 2017)

MEMBERSHIPS

American Institute of Certified Public Accountants, Member 01182237 (1985 -)
 The Economic Club of Chicago (1990 -2019)
 The Licensing Executives Society (1988 -)
 Young Presidents' Organization ("YPO" / "YPO Gold" Chicago Chapter, 2006 – 2017) (Mid-America U.S. At Large Chapter, 2019 -)

RECOGNITION AND AWARDS

Individually, Mr. Malackowski has been recognized for his expertise as well as his work in developing markets for intellectual property transfer including:

- *EY Entrepreneur Of The Year*®, Regional Semifinalist (2019 and 2020)
- "IAM Global Leaders", *IAM Magazine* (2020)
- "IAM Patent 1000: The World's Leading Patent Professionals", *IAM Magazine* (2015-2019)
- Named to the *National Law Journal*'s inaugural list of 50 Intellectual Property Trailblazers & Pioneers. (August 2014)
- Named as 1 of 60 leading global Economics Expert Witnesses in the *IAM Patent 1000*, *IAM Magazine*. Selection based on interviews by IAM researchers with more than 100 patent litigators. (May 2014)



- Inductee, Chicago Area Entrepreneurship Hall of Fame as selected by the Institute for Entrepreneurial Studies at the University of Illinois at Chicago College of Business Administration, (2013; 28th Year of Program)
- Named as 1 of 50 Individuals, Companies and Institutions that Framed the First 50 Issues of *IAM Magazine*, November / December 2011.
- “IP Personalities of 2008”, *IAM blog* by Joff Wild, Editor
- “IAM Strategy 300: The World’s Leading IP Strategists”, *IAM Magazine* (2012-2019); formally presented and included as “World’s 250 Leading IP Strategists”, *IAM Magazine* (2009-2011)
- “50 Under 45”, *IP Law & Business*TM (2008)
- “The Most Influential People in IP”, *Managing Intellectual Property*TM (2007)
- Member, IP Hall of Fame Academy (2007-)

Ocean Tomo as a firm has been likewise recognized for its accomplishments including:

- Ocean Tomo was chosen as the exclusive U.S. representative for the 2016 Healthcare & Pharma Leading Expert Awards by *Global Health & Pharma Magazine*.
- Ocean Tomo was recognized as a member of the 2015 *Inc. 5000*[®] list of fastest-growing private companies in America.
- Ocean Tomo was honored in 2011 with the “Best of Chicago Award in Investment Advisory Services” by the U.S. Commerce Association (USCA).
- In addition to Mr. Malackowski, Ocean Tomo as a firm was named as 1 of 50 Individuals, Companies and Institutions that Framed the First 50 Issues of *IAM Magazine*, November / December 2011 and the only firm other than Microsoft (2 of 50 mentions) to be recognized multiple times (5 of 50 mentions).
- The firm’s Chicago office was presented the 2011 *Alfred P. Sloan Awards for Business Excellence in Workplace Flexibility* after having been finalist for scoring in the top 20% of all firm’s measured nationally.
- Ocean Tomo was recognized in 2010 by Corporate Voices for Working Families for its work-life balance as part of the National Workplace Flexibility Campaign published by *USA Today*.
- Ocean Tomo was recognized as a juried Finalist for the Illinois Technology Association 2010 CityLIGHTS Award for raising the stature of the Illinois technology industry.
- Selected as case study organization for Haas School of Business, University of California, Berkeley (2009)
- Selected as case study organization for Harvard Business School MBA Program (2008)
- Ocean Tomo was named one of 20 small and mid-sized firms recognized as the “Best Places to Work in Illinois” by Best Companies Group in a competition sponsored by the Illinois Chamber of Commerce and the Illinois State Council Society for Human Resource (2007)
- Ocean Tomo Auctions received the 2006 Chicago Innovation Award for most innovative new product or service introduced between January 1, 2005, and July 31, 2006, that uniquely satisfied unmet needs in the



marketplace. The award was presented by Kuczmarski & Associates and the *Chicago Sun-Times*.

- Ocean Tomo Auctions was awarded the Department of Commerce Technology Administration & National Knowledge & Intellectual Property Management 2006 Innovator of the Year Award.
- Ocean Tomo was recognized as a “Top Ten IP Newsmakers of 2006” by *IP Law & Business*, Almanac 2006.

Numerous authors and graduate business programs have written case studies about Ocean Tomo and its affiliates including:

- Piscione, Deborah Perry, The Risk Factor, Copyright 2014.
- Houle, David, Entering the Shift Age, Copyright 2013.
- Kuczmarski, Thomas D., Dan Miller and Luke Tanen, Innovating Chicago-Style: How Local Innovators Are Building The National Economy, Copyright 2012.
- Houle, David, The Shift Age, Copyright 2007.
- Chesbrough, Henry, Open Business Models: How to Thrive in the New Innovation Landscape, Copyright 2006.
- Harvard Business School Case Study
- University of California Business School Case Study

**RELATED U.S.
SPEECHES AND
PUBLICATIONS**

“The Determination of a Reasonable Royalty: Hypothetical Negotiation v. A General License Agreement”, The Licensing Executives Society, Chicago Chapter, December 8, 1987.

“The Business Economics of Technology Development”, The Licensing Executives Society, New England Chapter, February 9, 1988.

“The Importance of Protecting Intellectual Property Through Corporate Transition”, Licensing Executives Society, National Meeting, October 18, 1989, Moderator.

“Valuation of Intellectual Property Rights”, The Chicago Bar Association, March 6, 1990.

“Dispute Resolution – There Are Alternatives!”, Licensing Executives Society, National Meeting, October 22, 1990.

“How to Value a License”, Adding to the Bottomline Through Licensing, LES/ John Marshall Law School, November 1, 1990.

“An Advanced Discussion on Licensing and Patent Damages”, Licensing Executives Society, National Meeting, October 28, 1992.

“An Advanced Discussion on Patent Damages”, Licensing Executives Society, National Meeting, October 18, 1993.



Royalty Provisions in Technology License Agreements, Technology Transfers, American Conference Institute, November 15 & 16, 1993.

“Commercializing Technology and the Intellectual Property Quality Management Imperative”, Technology Transfer, American Conference Institute, June 20 & 21, 1994.

“How to Accurately Value Software”, The Software Protection and Litigation Institute, July 28 & 29, 1994.

“IP Damages Advanced Case Studies”, Licensing Executives Society, National Meeting, October 19, 1994.

“Preparation and Presentation of Damages by Outside Consultants”, AIPLA Mid-Winter Meeting, February 1, 1995

“Damages Discovery - An Expert's Perspective”, Intellectual Property Law Association, New York, December 15, 1995.

“Pre-Litigation Damages Techniques: Patents and More”, The Intellectual Property Strategist, March, 1996.

“Corporate Exposures to Copyright, Patent, Trademark, and Trade Secret Claims”, Digital Bullets - Digital Shields: A Financial Perspective, American Conference Institute, New York, March 5, 1996.

“IP Management and Taxation - How companies are proactively managing IP assets to maximize shareholder value, including measuring contribution of IP protection to corporate value”, American Bar Association, Virginia, April 11, 1996.

“Effectively Select & Use Experts in Trademark & Copyright Cases”, AIPLA Spring Meeting, Boston, May 1, 1996.

“The Industry-University Interface: Mechanisms For Technology Transfer”, 1996 AUTM Central Region / Licensing Executives Society Chicago Chapter, Chicago, July 21, 1996.

“Valuing Health Care Technologies”, Licensing Executives Society Winter Meeting, South Carolina, March 13, 1997.

“Creative Marketing & Packaging - How to Differentiate Yourself in a Competitive Market”, CTIA Annual Meeting, Atlanta, February 23, 1998.

“Intellectual Property Valuation: The Latest Techniques from Boardroom and Courtroom”, Patent Law Association of South Florida Annual Meeting, Fort Lauderdale, October 22, 1998.

“The Aftermath of *Rite-Hite v. Kelly*”, 16th Judicial Conference of the U.S. Court of Appeals for the Federal Circuit, Washington D.C., April 6, 1999.



“Expert Admissibility After Daubert”, Wisconsin Academy of Trial Lawyers, Milwaukee, December 3, 1999.

“Intellectual Property Strategic Planning: a Corporate Perspective”, Research Directors Association of Chicago, Winter Meeting, January 10, 2000.

“Intellectual Property Asset Management: Linking IP and Corporate Strategy”, 44th Annual Conference on Developments in Intellectual Property Law, John Marshall Law School, Chicago, February 25, 2000.

“Boost Your Client’s Intellectual Capital IQ: Get Top Management Involved”, Corporate Legal Times, October 2000, p. 104.

“Strategic and Financial Opportunities for Privately Held and Public Middle Market Companies: Building Shareholder Value”, The Standard Club, Chicago, October 5, 2000.

“Commercializing Intellectual Capital Through Venture Funding”, LESI Expanded Board of Directors Meeting and Seminar, Delray Beach, Florida, January 26, 2001; LES Chicago Meeting, May 10, 2001.

“New Paths to Growth: Joint Ventures and Accessing Equity Capital”, Panel Presentation and Discussion, LaSalle Street Project Economic Summit, Chicago, May 10, 2001.

ViewPoints, The Newsletter of the Licensing Executives Society (U.S.A. and Canada), Inc., President’s Column: Vol. VIII No. 5, Nov. / Dec. 2001, “President Changes the Way LES Does Business”; Vol. VIV No. 1, Jan. / Feb. 2002, “It’s Time To Count Our Intellectual Assets”; Vol. VIV No. 2; Vol. VIV No. 3, May / June 2002, “Mid-Year Review”; Vol. VIV No. 4, July / August 2002, “Ethical Issues Related To Intellectual Property”.

“Venture Investment Grounded In Intellectual Capital”, From Ideas To Assets: Investing Wisely in Intellectual Property, Edited by Bruce Berman, John Wiley & Sons, Inc., 2002.

“Current Issues in Accounting for Intangibles”, Congressional Economic Leadership Institute, Panel Presentation and Discussion with Steven H. Wallman, Former Commissioner, United States Securities and Exchange Commission, Washington, DC, May 1, 2002.

“Intellectual Capital Based Corporate Carve-outs: Strategy, Structure and Funding”, James E. Malackowski and Suzanne Harrison, The LESI Guide to Licensing Best Practices, Edited by Robert Goldscheider, John Wiley & Sons, Inc., 2002.

“Intellectual Property Finance: Securitization to Venture Capital”, American Bar Association Intellectual Property Law Conference, Philadelphia, June 28, 2002.

“The IIPi Roundtable: The New Emphasis on Patent Value – Opportunities and Challenges”, Washington DC, July 22, 2002.



“Moving Technology from University to Marketplace: Business Creation and the Venture Capital Community, Licensing Executives Society Annual Conference, Chicago, September 24, 2002.

“Presidents’ Forum on Intellectual Property: A Leadership Discussion with The Licensing Executives Society, the American Intellectual Property Law Association, the Association of University Technology Managers, the Intellectual Property Owners Association, The National Inventors Hall of Fame, and BIO”, Licensing Executives Society Annual Conference, Chicago, September 24, 2002.

“Extracting Value From Your Intellectual Asset Portfolio: Ensuring ROI from IP and Technology Assets”, World Research Group, November 22, 2002, Chicago, Illinois.

“Licensing”, American Intellectual Property Law Association 2003 Mid-Winter Institute, Marco Island, Florida, January 22 – 25, 2003.

“Cashing in on Chicago: A Closer Look at Liquidity in the Heartland”, The Executives’ Club of Chicago, Panel Discussion, February 11, 2003.

Conference Chair and Speaker, “Optimizing Valuation & Value Realization of your IP/Intellectual Assets”, World Research Group, Las Vegas, February 27-28, 2003.

Live Webcast, “Turning Your Intellectual Property into Cash”, Ernst & Young Business Insights, April 28, 2003.

Intermediate PDS Workshop: Application of Private Equity and Leveraged Finance Investing to Intellectual Property, LES / AUTM Summer Meeting, Philadelphia, May 8, 2003.

World Research Group, Advanced Intellectual Property Structured Finance, Conference Co-Chair Person, New York City, June 29-30, 2003.

The Conference Board, The 2003 Conference on Intellectual Asset Management & Value Reporting, “Application of Private Equity and Leveraged Finance Investing to Intellectual Property”, Chicago, June 4, 2003.

Intellectual Property and Information Technology for Investment Funds, “Intellectual Capital Equity Management”, Panel Discussion Sponsored by Schulte Roth & Zabel, New York City, June 18, 2003.

Chicago Capital Access Forum III, “Private Investors: The Case for Domestic Emerging Market Investments”, Panel Discussion, Chicago, June 26, 2003.

Pension Consultants’ Forum, “Extracting Value from Private Equity Investing”, World Research Group, Chicago, July 22, 2003.

Midwest Intellectual Property Institute, “Intellectual Capital Equity Management”, Minneapolis, September 19, 2003.



“Intellectual Asset Strategies”, Add-On Seminar at the 2003 Licensing Executives Society Annual Meeting, San Diego, September 25, 2003.

“Leveraging Intellectual Property”, Keynote Speaker, Thomson Financial Thought Leadership Forum, New York, October 8, 2003.

“Beyond Licensing: Innovative Techniques for Extracting Value”, Advanced Forum on Licensing Intellectual Property, San Francisco, December 9, 2003.

Intellectual Asset Management, *Column: IP Merchant Banker*, Douglas R. Elliott & James E. Malackowski, Issue 01, “Challenges of the Fifth Epoch”, July / August 2003; Issue 02, “What the Market Fortells”, September / October 2003; Issue 03, “Economics, Ethos and Intellectual Ethics”, December / January 2004; Issue 04, “Patent Predictions – facts or fictions?”, February / March 2004; “Wealth management in the age of patents”, June / July 2004; “Patent pools – the 80% solution”, August / September 2004.

“Intellectual Capital Equity Management: IP as an Asset Class”, Minnesota State Bar Association Continuing Legal Education, Minneapolis, January 15-16, 2004.

“Understanding the Motivations Behind an IP Structured Finance Transaction”, “Analyzing the Anatomy of A Patent-Based Structured Finance Transaction”, World Research Group, New York, January 21-22, 2004.

“Managing Your Intellectual Property”, Investment Banking for Women / Minority Owned Business Enterprises, Annual Forum, Conference Co-Chairperson, Chicago, March 3-5, 2004.

“Private Equity: Investor Capital for Mature Businesses”, DreamMakers Forum 2004, Santa Barbara, California, March 7 – 10, 2004.

“IP Finance: Convergence of IP Valuation and Value Creation”, World Research Group 2nd Annual Strategies and Solutions for Optimizing IP Valuation & Value Creation, Chicago, March 23 – 24, 2004.

“Leveraging the Value of Intellectual Property”, Creating, Managing & Valuing an Intellectual Property Portfolio, Vedder Price Conference Series, Chicago, April 28, 2004.

“Federal Circuit Damages Decision Emphasizes the Importance of Sound Economic Models”, IP Review, McDermott Will & Emery, with Robert M. Hess, Spring 2004.

“Intellectual Property Merchant Banking: Leveraging Corporate Intangible Assets”, The Licensing Executives Society (U.S.A. & Canada), Inc., Fairfield-Westchester Counties Chapter, June 23, 2004.

“Intellectual Property Financing and Securitization: Conclusions and Future Implications for Financing the IP Market”, New York, New York, July 21, 2004.



“Emerging Financial Concepts in IP Asset Management”, Mining Patent Portfolios, Seattle, Washington, September 13, 2004.

“Intellectual Property Investment”, National Institutes of Health, Commercialization Assistance Program, Larta Institute, Chicago, November 12, 2004.

“Using Intellectual Property to Grow”, The Beacon, Chicagoland Entrepreneurial Center, Volume 3, Issue 4, December 10, 2004.

“Techniques for Assessing the Value of Your IP Portfolio”, The Wall Street Transcript Intellectual Property Conference, New York, January 27, 2005.

“The Tipping Point: Assessing Major Challenges and Growth Opportunities in IP Finance”, Moderator, The 3rd Annual Advancing IP Structured Finance World Research Group Conference”, New York, February 3, 2005.

“Commerce One IP Auction”, Optimizing IP Valuation and Value Creation, World Research Group Conference, Miami, March 30-31, 2005.

“Intellectual Capital Equity Management: IP As An Asset Class”, Minnesota Continuing Legal Education Conference, Minneapolis, May 12, 2005.

“Techniques for Evaluating IP Potential”, Life for After Rembrandts, Law Seminars International, Chicago, Illinois, August 4, 2005.

Keynote Address, 2nd Annual Intellectual Property Financing and Securitization Summit, New York, September 26, 2005.

“The Power of Intellectual Property in Private Equity Deals”, Association for Corporate Growth and The Licensing Executives Society Connecticut Chapters, Greenwich, Connecticut, October 6, 2005.

“Maximizing the Value of Distressed Debt Backed by Intellectual Property”, Financial Research Associates Distressed Debt Summit 2005, New York, October 7, 2005.

“To Sell or Not to Sell”, Licensing in the Boardroom 2005, a supplement to *Intellectual Asset Management* magazine, 2005.

Patent Auctions & Marketplaces: Leveraging Value from Under-employed Technologies, IP Master Class Presentation, Washington DC, January 10, 2006.

“Risky Business: Overlooking Patents as Financial Assets”, Making Innovation Pay, Edited by Bruce Berman, Published by John Wiley & Sons, Inc., 2006.

“The State of Development & Current Trends in IP Structured Finance” and “The Tipping Point: Assessing Major Challenges, Growth Opportunities and Future Trends in IP Finance”, Moderator, The 4th Annual Summit on IP Structured Finance, New York, March 22-23, 2006.



“Generating Revenue From Your Inventions”, IIR 2nd Annual Summit on IP Rights for Financial Services, New York, April 25-26, 2006.

“A Behind the Scenes Look at the Patent Bazaar: How Companies and Industry Are Buying and Selling Patents”, Innovators in IP Litigation, IP Law & Business, San Jose, California, May 17, 2006.

“Patent Markets and Their Impact to R&D Strategy”, Industrial Research Institute Annual Meeting, May 21-24, 2006, Colorado.

USC Gould School of Law 2006 Intellectual Property Institute; Featured Speaker, “A Final Word”; Panelist, “Patent Trolls: The Good, the Bad and the Ugly”; May 23, 2006, Los Angeles.

“Patent Auctions: Past, Present & Future”, The 50th Annual Conference on Developments in Intellectual Property Law, John Marshall Law School Center for Intellectual Property Law, May 25-26, 2006, Chicago. Speech published as “The Intellectual Property Marketplace: Past, Present and Future”, 5 J. Marshall Rev. of Intell. Prop. L. 605, (2006)

“Patent Auctions: Risky Endeavor or Legitimate Market Opportunity?”, Strafford Legal Teleconference Presentations, June 8, 2006.

The Intellectual Property Investment Summit: Connecting Investors with Strategic Intellectual Property Opportunities, Presented by the Center for Applied Innovation, Summit Co-Chairperson, June 15, 2006, Chicago.

Innovative Structures for Acquiring Intellectual Property: The Benefits, Challenges and Process, LSI Law Seminars International, Program Co-Chair, July 17, 2006, Chicago.

“Licensing and Intellectual Property”, Chicago Regional Independent Inventor’s Conference, Presented by the United States Patent and Trademark Office, Northwestern University School of Law, and the National Inventors Hall of Fame Foundation, July 28-29, 2006, Chicago.

“Reinventing the IP Marketplace – The Exclusive Ocean Tomo Patent Auction Case Study”, IP Licensing Summit: Practical Strategies to Maximize Revenue in Today’s Challenging Intellectual Property Marketplace, August 21-23, 2006, New York.

“Unlocking the Value of Intellectual Property Rights”, Conference of the International Bar Association, September 20, 2006, Chicago.

“This Too Shall Pass”, Americas IP Focus 2006, Managing Intellectual Property Rights, Copyright, Euromoney Institutional Investor, PLC, 2006.

“Developing Markets for Intellectual Assets and Technology”, 21st Annual Intellectual Assets and Technology Law Institute, October 5 & 6, 2006, Irving, Texas.



“Patent Damages” and “Patent Reform Efforts: An Update and Review”, The Sedona Conference Patent Litigation VII, October 12-13, 2006, Sedona, Arizona.

“Patent Auctions”, 44th Annual Intellectual Property Law Conference, The Center for American and International Law, November 9-10, 2006, Plano, Texas.

“The Future of Developing IP Markets”, 3rd Annual Monetization of Intellectual Property & Intangible Assets, Strategic Research Institute, November 16-17, 2006, Boston.

“The IP Transactional Landscape”, Economics of IP Based Transactions, National Knowledge & Intellectual Property Management Taskforce Series Program, November 29-30, 2006, Washington, D.C.

Keynote Presentation, The Business of Intellectual Property Conference, Tech Council of Maryland, Rockville, Maryland, January 10, 2007.

Luncheon Speaker, Corporate Intellectual Property Roundtable, Georgia State University College of Law, Atlanta, January 24, 2007.

“Patent Markets”, American Intellectual Property Law Association, 2007 Mid-Winter Institute, New Orleans, January 24-27, 2007.

“Assessing the Real Value of Your IP Portfolio” and “Growing IP Impact on Public and Semi-Public Markets”, The 5th Annual Summit on Monetizing, Financing & Securitizing IP, New York, January 30-31, 2007.

“Ocean’s 300”, Moderator, World Intellectual Property Review 2007, pp. 16-20.

“The Intellectual Property Marketplace: Emerging Transaction and Investment Vehicles”, Co-author with Cardoza, Gray and Conroy, *The Licensing Journal*, Aspen Publishers, Vol. 27, No. 2, pages 1 - 11, February 2007.

“The Importance of Emerging Intellectual Property Market Opportunities to the City of Chicago”, Keynote Speaker, Notre Dame Club of Chicago Meeting, Chicago, March 8, 2007.

“The Intellectual Property Marketplace”, Harvard Business School Club of New York, New York, April 12, 2007.

Keynote Address, BRICs & Mortar: Technological Drivers in Booming Economies of Brazil, Russia, India and China, Northwestern University Journal of Technology & Intellectual Property Second Annual Symposium, Chicago, April 13, 2007.

“Innovation Measurement: The Economic Impact of Patent Value”, Co-author with Barney, Cardoza, Walker and Gray, Submission to United States Department of Commerce Economics and Statistics Administration, Pursuant to Notice in the Federal Register, Vol. 72, No. 71, 18627, May 11, 2007.



“Objective Patent Valuation”, Business Meeting, Association of Corporate Patent Counsel, Newport, Rhode Island, June 27, 2007.

“Intellectual Property Exchange Chicago”, a two day symposium presented by The National Knowledge & Intellectual Property Management Taskforce and The Center for Applied Innovation, Moderator and Speaker, July 17 – 18, 2007, Chicago.

“Start-up Stories: Tales from the Front Line”, TiE Midwest, August 1, 2007, Chicago.

Keynote Address, Notre Dame Financial Executives Alumni Conference, September 21, 2007, South Bend, Indiana.

“The Birth of an IP Marketplace”, Missouri Bar Association Seminar, November 2, 2007, St. Louis, Missouri.

“Market Forces and IP”, The Giles S. Rich American Inn of Court, Howard University, January 17, 2008.

“Market for Technology: Challenges and Opportunities”, Panel Discussion on Impediments to Technology Markets, Duke University’s Fuqua School of Business, February 20, 2008.

“IP Markets – An Intangible Walk Down Wall Street”, Keynote Address, Securities Industry and Financial Markets Association, March 11, 2008, New York.

“Patent Valuation, Is there One or Many?”, Mini-Plenary Session of the High Tech Sector, The Licensing Executives Society International Annual Meeting, May 7, 2008, Chicago.

“What is Patent Quality – A Merchant Banc’s Perspective”, with Jonathan A. Barney, *les Nouvelles*, June 2008, p. 123 – 134.

“Intangibles in the Firm and Financial Markets”, *Intangible Assets: Measuring and Enhancing Their Contribution to Corporate Value and Economic Growth*, The National Academies, Washington DC, June 23, 2008.

“Developing IP Markets: Opportunity for the Financial Services Industry”, Keynote Address, The 5th Annual Patents & The Financial Services Industry Symposium, New York, July 29, 2008.

“New Trends in Monetizing IP Rights: Trolls, Licensing and Securitization”, *Managing Intellectual Property* Webinar, September 3, 2008.

“Magnificent Mile – Shopping for the Ideal IP Expert”, DRI Intellectual Property Litigation Seminar, September 4-5, 2008, Chicago.

From Assets to Profits: Competing for IP Value and Return, Contributing Author, Edited by Bruce Berman, John Wiley & Sons, November 2008.



Ocean Tomo: The New Kid on the (Auction) Block is All Grown Up, Institute for Law and Technology, 46th Annual Conference on Intellectual Property Law, November 10 – 11, 2008, Plano, Texas.

Federal Trade Commission: The Evolving Intellectual Property Marketplace, Keynote Address, Public Hearings, April 17, 2009, Washington, DC.

“Protecting and Commercializing New Ideas”, CoreNet Global Chicago Chapter Meeting, Chicago, May 13, 2009.

“The Future of the IP Marketplace”, Moderator and Plenary Speaker, IP Markets 2009, Chicago, July 23, 2009.

“Staying Ahead of the Curve— Strategic Intelligence, Value Assessments and Monetization in a Highly Competitive Economy”, The 6th Annual Patents & The Financial Services Industry Conference, New York City, July 28-29, 2009.

“Helping Companies in a Down Economy: Strategic Planning for Identifying and Valuing Your IP”, American Bar Association Annual Meeting, Chicago, July 31, 2009.

“Managing IP During Uncertain Times”, NanoBusiness Alliance Conference, Chicago, September 8, 2010.

National Economic Framework for Intellectual Property Based Commerce, A Research Report by the National Knowledge & Intellectual Property Management Taskforce, Net Worth Press, 2009.

“The Role of IP in Tough Economic Times and How to Use it to Your Advantage: Corporate Recovery and Restructuring”, Licensing Executives Society Annual Meeting, San Francisco, October 19, 2009.

“Global IP Market Development”, 11th Annual Utah IP Summit, Salt Lake City, February 13, 2010.

“Law, Economics, Business and Policy Implications for Innovation and Competition of Diverse Business Models for Using Patents”, Stanford University Hoover Institution Annual Conference, Stanford, California, June 25, 2010.

“Establishing an Objective Value of IP”, IPO Annual Meeting, Atlanta, September 14, 2010.

“Intellectual Property and the Marketplace: Hot Topics Impacting the Role of Patents, Trademarks and Copyrights in Today’s Business World”, Vedder Price Illinois Continuing Legal Education Forum, Chicago, October 6, 2010.

“IP Essentials for the Chief Executive Officer”, Illinois Technology Association, Chairman’s Dinner Keynote Speaker, Chicago, October 20, 2010.

“Valuation of IP in Emerging Market Platforms”, 2010 IP Damages Institute, CalCPA Education Foundation, Los Angeles, November 8, 2010.



“Shifting Sands: What is Discoverable and Admissible for Damages, Willfulness and Other Purposes”, Intellectual Property Owners Association CLE Roundtable, Washington, DC, March 21, 2011.

“Intellectual Property: From Asset to Asset Class”, Intellectual Property Strategies for the 21st Century Corporation, Bryer, Lebson & Asbell Editors, John Wiley & Sons, Inc., 2011.

“The Next Big Think in Monetizing IP: A Natural Progression to Exchange-Traded Units”, Ian D. McClure co-author, *LANDSLIDE*, A Publication of the ABA Section of Intellectual Property Law, Volume 3, Number 5, May/June 2011, pp. 32-37.

“Risk Management Strategies to Defend Against Patent Trolls and the New Trend in Patent Royalty Trusts”, 2011 Congress on Patent Strategies for the Financial Services Industry, New York, September 19-20, 2011.

“Patent Quality and its Impact on Valuation”, Licensing Executives Society United States and Canada, Inc., Annual Meeting, San Diego, October 17, 2011.

Introduction, “LESI Global Technology Impact Forum (GTIF) Creates Tech Transfer Platform”, *les Nouvelles*, Journal of the Licensing Executives Society International, Volume XLVII No. 2, June 2012.

Panelist, “IP Monetization”, McDermott Will & Emery 2012 Intellectual Property Symposium, Chicago, June 14, 2012.

Keynote Address, Northwestern Law Fifth Annual Conference on Entrepreneurship and Innovation, Chicago, June 14, 2012.

“IP Market Development”, 38th Annual Intellectual Property Law Summer Institute, Sponsored by the Intellectual Property Law Section of the State Bar of Michigan, Traverse City, Michigan, July 21, 2012.

“An Investors’ Perspective on IP”, CenterForce IP Strategy Summit, New York City, New York, November 13, 2012.

“Investing in IP”, DealFlow Media Webinar, January 10, 2013.

“Evolving IP Marketplace”, American Intellectual Property Law Association, Mid-Winter Meeting, Tampa, Florida, February 1, 2013. Includes paper: *New Emphasis on the Analytical Approach of Apportionment In Determination of a Reasonable Royalty* by James E. Malackowski, Justin Lewis and Robert Mazur.

“An Inventor’s Walk Down Wall Street”, PatCon 3 at Illinois Institute of Technology Chicago-Kent School of Law, Chicago, April 12, 2013.

Report on Judge Rader Comments at the 2013 LESI Annual Conference, LESI Global News, Vol. XLVIII No. 2, June 2013.



“Strategic Insights”, Plenary Panel Discussion, IPBC 2013, IP Business Congress, Boston, June 9, 2013.

“IP and Antitrust”, Panel Discussion, McDermott 2013 IP Symposium, June 13, 2013, Chicago.

IP Investments and Markets Presented by the Center for Applied Innovation, Panelist on IP Marketplace, Chicago, June 25-26, 2013.

Capturing Innovation, Irish Entrepreneurs: An Affiliate Group of the Notre Dame Club of Chicago, Chicago, September 5, 2013.

Preventing the Napsterization of 3D Printing: Areas for Industry Collaboration and Transparency, Inside 3D Printing Conference and Expo, San Jose, California, September 18, 2013.

The Latest Thinking about Non-Practicing Entities, 2013 AIPLA Annual Meeting, Washington, DC, October 25, 2013.

Challenges and Opportunities in Asia, Think Asia, Think Hong Kong: IP, Technology & China/U.S. Opportunities, The Hong Kong Business Association of the Midwest, Chicago, November 19, 2013.

Rationalizing Remedies, The 2013 Patent Institute presented by Cravath Swain & Moore, New York, December 5, 2013.

Special Address: Looking to the Future of the Intellectual Property Marketplace—Where Will We Be in 2020?, Best Practices in Patent Monetization, Law Seminars International, San Francisco, March 6-7, 2014.

Reinventing Finance: Funding Innovation Beyond Silicon Valley, Forbes Reinventing America Summit, Chicago, March 27-28, 2014.

IP Pricing – Current Issues for Markets and Courts, Georgia State University / Licensing Executives Society Joint Meeting, Atlanta, May 28, 2014.

The Growing Global 3DP IP Market & How Much Is At Stake, 3D Printing Politics, Washington D.C., September 17, 2014.

The Changing Role of the Expert, 2014 IP Institute presented by the Engleberg Center on Innovation Law & Policy at New York University and Cravath, Swaine & Moore, LLP, New York, December 4, 2014.

“Intellectual Property Exchange”, Dallas Chapter Meeting of the Licensing Executives Society (USA & Canada), Inc., Dallas, January 22, 2015.

“Actavis, Valuation, and Fairness Opinions”, 2015 Generic Pharmaceutical Association Annual Meeting, Miami, February 9-11, 2015.

Patent Damages Roundtable, USC Gould School of Law 2015 Intellectual Property Institute, Los Angeles, March 23, 2015.



“Intellectual Property Impact on M&A”, Transaction Advisors Midwest Symposium, Chicago, September 17, 2015

“The Changing Landscape of Patent Value and Patent Risks”, 2016 Berkeley Law / Cleary Gottlieb M&A-IP-Antitrust Conference, Berkeley Center for Law, Business and the Economy, San Francisco, January 29, 2016.

“Damages Experts on Evidence and Gatekeeping”, The University of Texas School of Law Conference on Patent Damages, Austin, Texas, June 9-10, 2016.

“Investing In Innovation: Global Trends In Innovation and Sustainability”, CFA Society of Chicago, Chicago, September 28, 2016.

IP Remedies Roundtable and Workshop, USC Gould School of Law 2017 Intellectual Property Institute, Los Angeles, March 20, 2017.

“Economic Tools Used for Damages Estimation”, Panel Discussion, Intellectual Property Owners Association, Chicago, June 7, 2017.

“Quantitative Approaches to Determining FRAND Royalties”, Intellectual Property Owners Association Annual Meeting, San Francisco, September 18, 2017.

“The Intersection of Intellectual Property, Blockchain and Cryptocurrency”, Licensing Executives Society International Annual Conference, San Diego, April 30, 2018 – May 1, 2018.

“Best Practices and Useful Tools for Assessing the Value of Your Company’s IP”, American Intellectual Property Law Association 2018 Spring Meeting May 15 - 17, 2018.

“Practical Blockchain”, IDEA Week Innovation Festival, South Bend, Indiana, April 8, 2019.

“Blockchain Primer,” Introductory Remarks by Hon. Kara F. Stoll, The Giles S. Rich American Inn of Court, Washington D.C., February 11, 2020.

Managing Your Intellectual Property, LESI Business Briefings, Series Co-author, May 2020.

**INTERNATIONAL
SPEECHES AND
PUBLICATIONS**

“Taxation Issues when Licensing with the U.S.”, Licensing Executives Society International, South Africa Conference, January 28, 1996.

“Intellectual Property Damages: Advanced Case Studies”, Licensing Executives Society Annual Meeting, Puerto Rico, September 30, 1996.

“License Agreement Royalty Audits: Untapped Riches Or Fool’s Gold?”, Licensing Executives Society Annual Meeting, Puerto Rico, October 1, 1996



“Valuation of IPR”, Conference on Appeals Related to Intellectual Property, Bucharest, Romania, November 20, 1997.

“Avaliação e Contabilização de Propriedade Intelectual – Metodologia e Aspectos Fiscais”, XIX Seminário Nacional de Propriedade Intelectual, Rio de Janeiro, Brazil, August 16, 1999.

“Avaliação e Contabilização de Propriedade Intelectual”, Conferência pela Consulate General of the United States of America, São Paulo, Brazil, August 18, 1999.

“Avaliação e Contabilização de Propriedade Intelectual”, Conferência pela Consulate General of the United States of America, Curitiba, Brazil, August 20, 1999.

“IP Valuation Trends”, Licensing Add-on Seminar, LESI Annual Conference, Krasnapolsky, Amsterdam, Netherlands, May 21, 2000.

“Intellectual Property from a Board Room Window”, Plenary Session II LESI Strategies, LESI Annual Conference, Krasnapolsky, Amsterdam, Netherlands, May 23, 2000.

“Due Diligence in an Intellectual Capital Focused Investment”, LES Annual Conference Add-on Session, Toronto, September 14, 2000.

“What’s New in Intellectual Property Asset Management”, Panel Discussion, 8th Annual Intellectual Property Law Institute, State Bar of Georgia, Puerto Vallarta Mexico, November 15, 2002.

“Les brevets en tant qu’actifs économiques: comment les exploiter au mieux” and “Brevets et financement: couvrir les coûts, trouver des investisseurs”, Un System Du Brevet Competitif Pour L’Europe, sponsored by the European Patent Office, Brussels, May 3-4, 2006.

“What is Patent Quality?”, Co-author with Jonathan A. Barney, Paper Presented to the Colloquium on a Comprehensive Approach to Patent Quality, Federation Internationale Des Conseils En Propriete Industrielle, Amsterdam, June 8-9, 2007.

“Fostering Innovation with Seed Money and Venture Capital”, Licensing Executives Society International Annual Conference, Zurich, June 19, 2007.

“Legal Problems Arising from Auctioning of IPR”, Bi-Annual International Forum, Association Internationale Pour La Protection De La Propriete Intellectuelle, October 6, 2007.

“IP Auctions”, Plenary Address, The Licensing Executives Society Annual Meeting, October 16, 2007, Vancouver, Canada.

“IP Valuation for IPO’s”, Warsaw Stock Exchange Executive Conference, June 27, 2008, Warsaw, Poland.



“IP As A Business Tool”, Licensing Executives Society International Conference, January 29-30, 2009, New Delhi, India.

“Global IP Market Development”, Keynote Address, The Licensing Executives Society Australia and New Zealand, April 2-4, 2009, Canberra, Australia.

“Global IP Market Development”, The Licensing Executives Society Philippines, June 8, 2009, Manila, Philippines.
Entwicklung einer Infrastruktur im Blickpunkt, Der Intellectual Property Exchange, *IP Manager: Journal for the Knowledge Economy*, 01/2009.

“Global IP Market View”, Division des Analyses Economiques et des Statistiques, Organization de Cooperation et de Developpement Economiques, January 8, 2010, Paris, France.

“Global IP Market View”, BusinessEurope Patents Working Group Meeting, The Confederation of European Business a.l.a.b.l., January 28, 2010, Brussels, Belgium.

“Global IP Market View”, Inaugural Annual Conference, LES Turkey, January 29, 2010, Istanbul, Turkey.

“Commercialization Strategies for Industrial Property Assets”, LES Brazil Annual Congress, January 28, 2011, Rio de Janeiro, Brazil.

“Developing Commercial IP Markets”, LES Arab Countries and Abu Dhabi Higher Colleges of Technology Seminar, October 12, 2011, Abu Dhabi, UAE.

“Asian IP Market Development”, LES Asia Pacific Meeting, LES Singapore, November 9-10, 2011, Singapore.

“Patent Auctions & Technology in an Emerging Global Economy”, LES Philippines, November 16, 2011, Manila.

“Tech Transfer for Humanitarian Purpose”, LESI Annual Conference, April 2, 2012, Auckland.

Moderator, “New Challenges in ICT: How to Compete Using IP Assets”, LES Pan European Meeting, Rome, June 12, 2012.

Workshop Panelist, “Accelerate Licensing & Avoid Litigation: Effective Use of Transparency, Investors & Risk Management Tools”, LES Pan European Meeting, Rome, June 12, 2012.

Keynote Speech, “Research Trends Around the Globe on Licensing”, LES Asia Pacific Regional Conference, Tokyo, Japan, September 3, 2012.

“Investing in IP and Developing IP Monetization and Risk Markets: U.S. Perspective”, LES Scandinavia Annual Meeting, Helsinki, Finland, September 12, 2012.



“El Mercado Global De Tecnología”, LESI Innovation Tour, LES Mexico and Asocia cion Mexicana de Directivos de la Investiga tion Aplica da y el Desarrollo Tecnológico, A.C., Mexico City, Mexico, September 21, 2012.

Research Handbook on Intellectual Property Licensing, Forward, Jacques de Werra, University of Geneva, Editor, Edward Elgar Publishing, 2012.

“Markets for Humanitarian Technology Transfer” and “Adoption by Resolution of LESI IP Business Principles”, LESI Global Technology Impact Forum, Geneva, Switzerland, January 22, 2013.

Forward, Research Handbook on Intellectual Property Licensing, Edited by Jacques de Werra, Edward Elgar Publishing Limited, 2013.

“IP Market Development” / “Simplicity in Global IP Valuation”, LESI Annual Conference, Rio de Janeiro, Brazil, April 10, 2013.

“Collaboration for IP Based Accounting and Reporting”, LESI Global Technology Impact Forum, Geneva, Switzerland, January 20-21, 2014.

“IP Licensing and Intermediaries”, LES Asia -Pacific Regional Conference, Seoul, Korea, November 4-6, 2014.

“Building IP Transaction Platforms”, Keynote Presentation, 14th Annual Shanghai International Intellectual Property Forum, Hosted by the World Intellectual Property Organization, (Shenzhen, China, December 7, 2017 as an advance local presentation) Shanghai, China, December 13, 2017.

“Building and Enforcing a Global Portfolio for Protection and Monetization”, Moderator, 2018 LES IP100 Executive Forum, Phoenix, Arizona, February 15-16, 2018.

“Valuation of IP In the Eye of the Beholder” and “IP Monetization Lifecycle”, Moderator, Inaugural IP Conference on Issues that Make a Difference, University of Arizona Law, Tucson, Arizona, March 5-6, 2018.

Best Practices and Useful Tools For Assessing the Value of IP, Co-authored with Mick Baciu and Drew Sills, American Intellectual Property Law Association 2018 Spring Meeting, Seattle, Washington, May 15-17, 2018.

“Toward Early Dispute Resolution of Standard Essential Patents in the 5G Era”, International Arbitration Center Tokyo, Mock Arbitration, Tokyo, Japan, June 29, 2018.

“Practical Blockchain”, LESI Annual Conference, Yokohama, Japan, May 28, 2019.

“Managing Your Intellectual Property”, LESI Business Briefing Report, published by the Licensing Executives Society International, Inc., Copyright 2020.



“Managing Your Intellectual Property”, Rigorous Empirical Research on Intellectual Property, virtual presentation by 4iP Council and the Licensing Executives Society International, September 29, 2020.

**TELEVISION, RADIO
AND EDITORIAL**

Bloomberg Morning Call with Brian Sullivan, “Patent Auctions”, March 3, 2006.

CNBC Closing Bell, “Patents for Purchase”, Interview with Maria Bartilomo, April 4, 2006.

CNBC On the Money, “Patents for Sale”, Interview and Report by Scott Wapner, April 7, 2006.

Bloomberg Morning Call with Brian Sullivan, “Ocean Tomo 300 Index” and “Fall Intellectual Property Auction”, September 13, 2006.

CBS WBBM-AM News Radio with Andy Giersher, Noon Business Hour, “New Stock Market Index”, December 2, 2006 plus repeats.

Bloomberg Evening *Market Pulse* with Pimm Fox, “Stock Selections with Strong Patents”, January 9, 2007.

Judge, *Everyday Edisons: Ordinary People, Extraordinary Ideas*, a Public Broadcasting System documentary series, 2nd Season, to be aired 2008.

Bloomberg Final Word with Brian Sullivan, “Changes in IP Laws Affect Stock Price”, March 10, 2008.

FOX Business National, “Investing in Patents”, June 5, 2008.

“It’s the auto technology, Congress”, *The Detroit News*, detnews.com, December 2, 2008.

FOX Business National, “Capturing Value from IP During a Recession”, January 12, 2009.

FOX Business National, “The Value of Technology and Patents in a Chrysler Bankruptcy”, May 1, 2009.

FOX Business National, “Exchange Looks to Value Patents”, October 5, 2009.

TV Tokyo, “IP Markets”, October 4, 2010.

FOX Business National, “Patent Litigation Trends”, October 4, 2010.

CNBC Street Signs, “Patent-Palooza”, July 26, 2011.

CNBC Street Signs, “Patent Battleground”, August 15, 2011.

CNBC Street Signs, “IPXI: Trading Patents in 2012”, December 14, 2011.



CEO IntroNet, May 16, 2012.

CNBC Street Signs, "Research In Motion's Patent Portfolio, May 30, 2012.

Crain's Chicago Business, Chicago Business Video, "Preview of the Eureka Index", April 25, 2013.

CNBC Street Signs, "Valuing Intangible Assets", August 5, 2013.

Chicago Tribune Blue Sky Innovation, "Why Robots Roam the Halls...", July 16, 2014.

CNBC Worldwide Exchange, "The Big Battle Over Intellectual Property: U.S. – China Trade Tariffs and IP", March 26, 2018.

**EXPERT
TESTIMONY**

01 Communique Laboratory, Inc. v. Citrix Systems, Inc. & Citrix Online, LLC
Civil Action 1:06-CV-0253 (N.D. Ohio)
United States District Court for the District of Massachusetts
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Abiomed Inc. v. Maquet Cardiovascular LLC
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ABS Global, Inc. v. Inguran, LLC d/b/a Sexing Technologies and XY, LLC v.
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Acadia Research Group, LLC and Lifeport Sciences, LLC v. Boston Scientific
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Acantha LLC v. DePuy Synthes Sales, Inc., DePuy Synthes Products, Inc.,
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DePuy Orthopaedics, Inc. and DePuy Spine, LLC
Case No. 1:15-cv-01257-WCG
United States District Court for the Eastern District of Wisconsin Green Bay
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Advanced Aerospace Technologies, Inc. v. The United States of America and
The Boeing Company and Institut, Inc.
Case No. 12-85C
United States Court of Federal Claims



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Advanced Micro Devices, Inc. and ATI Technologies, ULC v. Samsung Electronics Co. Ltd. et al.
No. CV-08-0986-SI
United States District Court for the Northern District of California San Francisco Division
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Advanced Technology Materials, Inc. v. Praxair, Inc.,
Civil Action No.03 CV 5161 (RO)
United States District Court for the Southern District of New York
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A.I.T. Industries, Inc., f/k/a Photocentron, Inc. v. Yordan Vurich and Opti-Vue, Inc.
Civil Action No.94-C-5196
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Allan Stimmel v. Eugene Weiner, Kurt Gutfreund and M & L International, Inc.
Civil Action No. 89 C 6510 (ACW)
United States District Court for the Northern District of Illinois, Eastern Division
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Altana Pharma AG and Wyeth v. Teva Pharmaceuticals USA, Inc. and Teva Pharmaceuticals Industries Ltd., et. al.
Civil Action No. 04-2355
United States District Court for the District of New Jersey
Deposition Testimony

Analog Devices, Inc. v. Christopher Michalski, Kiran Kamik and Maxim Integrated Products, Inc.
Case 01 CVS 10614
State of North Carolina Superior Court Division, County of Guilford
Deposition Testimony

Andrx Pharmaceuticals, LLC v. GlaxoSmithKline, PLC and SmithKline Beecham Corporation
Case No. 05-23264-CIV-Graham/O'Sullivan
United States District Court for the Southern District of Florida
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Applied Medical Resources Corporation v. Gaya Limited
AAA Case No. 50 133 T00316 06
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Arendi S.A.R.L. v. Apple Inc.
Case No. 1:12-cv-01596
United States District Court for the District of Delaware
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Arthur Takeall v. PepsiCo, Inc.
Civil Action S92-766
United States District Court for the District of Maryland
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Ashley Furniture Industries v. Laura Ashley Holdings Plc and Laura Ashley, Inc.
AAA File No. 51 133 Y0105608
American Arbitration Association
Arbitration and Deposition Testimony

Atlantic Richfield Company, Chevron U.S.A., Inc., Exxon Corporation, Mobil Oil Corporation, Shell Oil Products Company and Texaco Refining & Marketing, Inc. v. Unocal Corporation and Union Oil Company of California and Union Oil Company of California v. Atlantic Richfield Company, Chevron U.S.A., Inc., Exxon Corporation, Mobil Oil Corporation, Shell Oil Products Company and Texaco Refining & Marketing, Inc.
Civil Action No. CV-95-2379 KMW(JRx)
Trial and Deposition Testimony

Avery Dennison Corp. et al v. FLEXcon Company, Inc.
Civil Action No. 96-C 4820
United States District Court for the Northern District of Illinois, Eastern Division
Deposition Testimony

Aylus Networks, Inc. vs. Apple, Inc.
Case No. 3:13-cv-4700
United States District Court for the Northern District of California
Deposition Testimony

Bath & Body Works Brand Management, Inc. v. Summit Entertainment, LLC
Case No. 11 Civ 1594 (GBD)
United States District Court for the Southern District of New York
Deposition Testimony

Bayer Pharma AG, Bayer Intellectual Property GMBH and Bayer Healthcare Pharmaceuticals, Inc. v. Watson Laboratories, Inc.
Civil Action No 12-517-GMS
United States District Court for the District of Delaware
Trial and Deposition Testimony

Beloit Corp v. Voith, Inc. & J.M. Voith GmbH
Civil Action No. 92 C 0168 C
United States District Court for the Western District of Wisconsin
Trial and Deposition Testimony

Bio-Rad Laboratories, Inc. and the University of Chicago v. 10x Genomics, Inc.
Case No. 15-152-RGA
United States District Court for the District of Delaware
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Board of Trustees of the Leland Stanford Junior University and Litton Systems, Inc. v. Tyco International LTD., Tyco International, Inc., Tyco Telecommunications, Inc., Tyco Networks, Inc., Lucent Technologies, Inc., Agere Systems, Inc., JDS Uniphase Corporation, Ciena Corporation, Pirelli S.p.A., Ericsson, Inc., Telefonaktiebolaget Lm Ericsson and Ericsson Microelectronics Ab, Optoelectronic Products.
Case No. Cv-00-10584-TJH(RCx)
United States District Court for the Central District of California – Western California
Deposition Testimony

Bracco Diagnostics, Inc. v. Amersham Health Inc., Amersham Health AS, Amersham plc and Amersham Health Inc. v. Bracco Diagnostics, Inc.
Civil Action No. 03-6025
United States District Court for the District of New Jersey
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Brian D. Zdeb, et al v. Baxter International, Inc.
Civil Action No. 91-L-8726
Appellate Court of Illinois, First District, Sixth Division
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Briggs & Stratton Corporation v. Kohler Company
Case No. 05-C-0025-C
United States District Court for the Western District of Wisconsin
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Bristol-Myers Squibb Company v. Apotex Inc. and Apotex Corp.
Civil Action No. 3:10-cv-05810 (MLC)
United States District Court for District of New Jersey
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Brocade Communications Systems, Inc. and Foundry Networks, LLC v. A10 Networks, Inc. et al.
Case No. 10-cv-03428 LHK
United States District Court for the Northern District of California San Jose Division
Trial and Deposition Testimony

Callpod, Inc. v. GN Netcom, Inc. et al.
Case No. 06-CV-4961
United States District Court for the Northern District of Illinois Eastern Division
Deposition Testimony

CareDx, Inc. v. Natera, Inc.
Case No. 1:19-cv-00662-CFC-CJB
United States District Court for the District of Delaware
Deposition Testimony

CareFusion 303 v. Sigma International
Case No 10cv0442 DMS (WMC)
United States District Court for the Northern District of California



Trial and Deposition Testimony

Carter Bryant v. Mattel, Inc. and Consolidated Actions
United States District Court for the Central District of California Southern
Division
Case No. CV 04-9049-DOC (RNBx)
Consolidated with Nos. CV 04-9059 and CV 05-2727
Trial and Deposition Testimony

Catalina Marketing Corp. v. Advanced Promotion Technologies, Inc.
Civil Action No. CV 93-4741 WJR (Sx)
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Caterpillar Inc. v. International Truck & Engine Corp., Siemens Diesel Systems
Technology, LLC, Sturman Industries, Inc., Sturman Engine Systems, LLC,
Oded E. Sturman and Carol K. Sturman
United States District Court for the District of South Carolina, Columbia
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Case No. 3:03-1739-17
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CEATS, Inc. v. Continental Airlines, Inc., AeroSvit Airlines, CJSC, Air China,
Ltd., Air Europa Lineas Aereas, SAU, AirTran Airways, Inc., Alaska Airlines,
Inc., Horizon Air Industries, Inc., All Nippon Airways Co., Ltd., Aerovias Del
Contenente Americano SA, Brendan Airways, LLC, Caribbean Airlines, Ltd.,
Delta Air Lines, Inc., EgyptAir Airlines, Co., Frontier Airlines, Inc., JetBlue
Airways Corporation, Malaysia Airline System Berhad, Qatar Airways
Company QCSC, Alia Royal Jordanian, PLC, TAM, SA, Thai Airways
International Public Co., Ltd., United Air Lines, Inc., US Airways, Inc., Virgin
America, Inc.
Case No. 6:10-cv-120 LED
United States District Court for the Eastern District of Texas Tyler Division
Trial and Deposition Testimony

CEATS, Inc. v. Granada Theater, Live Nation Worldwide, Inc., Ticketmaster,
LLC, Tickets.com, Inc., Ticket Software, LLC, Ticket Network, Inc.,
TicketsNow.com, Inc., TNow Entertainment Group, Inc., Concur Technologies,
Inc.
Case No. 6:10-cv-120 LED
United States District Court for the Eastern District of Texas Tyler Division
Trial and Deposition Testimony

Centripetal Networks, Inc. v. Cisco Systems, Inc.
Case No. 2:18-CV-00094-HCM-LRL
United States District Court for the Eastern District of Virginia Norfolk Division
Trial and Deposition Testimony

Cheetah Omni, LLC v. Alcatel-Lucent USA Inc., et al. (on behalf of Tellabs
North America, Inc.)
Case No. 6:11CV390
United States District Court for the Eastern District of Texas Tyler Division
Deposition Testimony



Ciba Specialty Chemicals Corporation v. Hercules Inc. and Cytec Industries, Inc.

Civil Action No. 04-293

United States District Court for the District of Delaware

Deposition Testimony

Comair Rotron, Inc. v. Matsushita Electric Corporation of America, et al. - New Jersey Action

Civil Action No. 85-4308 (HLS)

Trial and Deposition Testimony

Commonwealth Scientific and Industrial Research Organization v. Lenovo (United States) et al.

United States District Court for the Eastern District of Texas Tyler Division

Case No. 6:09-cv-00399-LED

Deposition Testimony

Commonwealth Scientific and Industrial Research Organization v. Cisco Systems, Inc.

United States District Court for the Eastern District of Texas Tyler Division

Case No. 6:11-cv-00343-LED

Trial and Deposition Testimony

Commonwealth Scientific and Industrial Research Organization v. MediaTek Inc., et al.

United States District Court for the Eastern District of Texas Tyler Division

Case No. 6:12-cv-578-LED

Deposition Testimony

Computer Generated Solutions, Inc. v. Peter Loral, Loral Incorporated, PJK, Inc. and Belle Loral, LLC

Civil Action No. 97 Civ. 6298 (MBM)

Deposition Testimony

Construction Technology, Inc. v. Cybermation, Inc. et al.

Civil Action No. 91 Civ. 7474 (JSM)

United States District Court for the Southern District of New York

Trial and Deposition Testimony

Cordis Corporation v. SciMed Life Systems, Inc.

Case No. CV 4-96-261

United States Court for the District of Minnesota

Deposition Testimony

CoStar Realty Information, Inc. v. Civix-DDI, LLC and Civix-DDI, LLC v. LoopNet, Inc.

Case No. 1:12-cv-04968 (consolidated with 07091 and 08632)

United States District Court for the Northeastern District of Illinois Eastern Division

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C.R. Bard v. M3 Systems
Civil Action No. 93 C-4788
Trial Testimony

Curtis Amplatz and Carina Royalty, LLC v. AGA Medical Corporation
Court File No. 27-CV-10-27664
State of Minnesota District Court, County of Hennepin, Fourth Judicial District
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Semiconductor Energy Laboratory Co., Ltd. v. Samsung Electronics Co., Ltd., S-LCD Corporation, Samsung Electronics America, Inc. Samsung Telecommunications America, LLC
Civil Action No. 3:09-cv-00001
United States District Court for the Western District of Wisconsin
Deposition Testimony

Selex Galileo, Inc. v. Nomir Medical Technologies, Inc.
Case No. 01-17-0003-0930
American Arbitration Association
Hearing Testimony



Seven Networks, LLC v. Apple Inc.
Civil Action No. 2:19-cv-115-JRG
United States District Court for the Western District of Texas Marshall Division
Deposition Testimony

Shuffle Tech International, LLC and Aces Up Gaming, Inc. and Poydras-Talrick
Holdings, LLC v. Scientific Games Corporation and Bally Technologies, Inc.
(d/b/a SHFL Entertainment or Shuffle Master) and Bally Gaming, Inc.
Civil Action No. 1:15-cv-3702
United States District Court for the Northern District of Illinois Eastern Division
Trial and Deposition Testimony

Silicon Image, Inc. v. Analogix Semiconductor, Inc.
Case No. C 07-00635 JCS
United States District Court for the Northern District of California, San
Francisco Division
Deposition Testimony

Site Microsurgical Systems v. The Cooper Companies
Civil Action S92-766
Deposition Testimony

Slot Speaker Technologies, Inc. v. Apple Inc.
Case No. 4:13-cv-01161-HSG
United States District Court Northern District of California Oakland Division
Deposition Testimony

SmartPhone Technologies, LLC v. Research In Motion Corp. et. al (on behalf
LG Electronics, Inc. and LG Electronics USA, Inc.)
Civil Action No. 6:10cv74-LED
United States District Court Eastern District of Texas Tyler Division
Deposition Testimony

St. Clair Intellectual Property Consultants v. Fuji Photo Film Co., Ltd., Fuji
Photo Film U.S.A., Inc., Fujifilm America, Inc., et al.
Civil Action No. 03-241 JJF
United States District Court for the District of Delaware
Trial and Deposition Testimony

STMicroelectronics, Inc. v. SanDisk Corp.
C.A. No. 4:05CV44
United States District Court of Texas Sherman Division
Deposition Testimony

STMicroelectronics, Inc. v. SanDisk Corp.
C.A. No. 4:05CV45
United States District Court of Texas Sherman Division
Deposition Testimony

Sunoco Partners Marketing & Terminals L.P. v. U.S. Venture, Inc., U.S. Oil,
and Technics, Inc.



Civil Action No. 1:15-CV-8178
United States District Court for the Northern District of Illinois Eastern Division
Trial and Deposition Testimony

Synopsys, Inc. v. Ubiquiti Networks, Inc. et al.
Civil Action No. 3:17-cv-00561-WHO
United States District Court for the Northern District of California
Deposition Testimony

Takata Corp. v. Allied Signal, Inc. and Breed Technologies, Inc.
Civil Action CV-95-1750
Deposition Testimony

Technol Medical Products, Inc., et al v. Robert Busse & Co., Inc.
Civil Action No. 3:94-CV-2284-X
Deposition Testimony

Tekmira Pharmaceuticals Corporation and Protiva Pharmaceuticals, Inc. v.
Alnylam Pharmaceuticals, Inc. and AlCana Technologies, Inc.
Civil Action No. 11-1010-BLS2
Massachusetts Superior Court for Suffolk County
Deposition Testimony

Tessera, Inc. v. Advanced Micro Devices, Inc. et al.
Case No. 4:05-cv-04063-CW
United States District Court for Northern District of California Oakland Division
Deposition Testimony

Tessera, Inc. v. UTAC (Taiwan) Corporation
Case No.: 5:10-cv-04435-EJD
United States District Court for Northern District of California San Jose
Division
Deposition Testimony

Therma-Tru Corporation v. Caradon Peachtree, Inc.
Civil Action No. 95-CV-75534-DT
Deposition Testimony

Toro Company v. MTD Products Inc., MTD Consumer Group Inc., and Cub
Cadet LLC
Civil Action No 10-cv-007-JNE-TNL
United States District Court for the District of Minnesota
Deposition Testimony

Ultratec, Inc. and CapTel, Inc. v. Sorenson Communications, Inc. and
CaptionCall, LLC
Case No.: 3:14-cv-66-BBC
United States District Court for the Western District of Wisconsin
Trial and Deposition Testimony

Unwired Planet, LLC v. Apple, Inc.
Case No. 3:13-cv-4134-VC



United States District Court for the Northern District of California San
Francisco Division
Deposition Testimony

Valmet Paper Machinery, Inc. and Valmet-Charlotte, Inc. v. Beloit Corporation
Civil Action No. 93-C-587-C
United States District Court for the Western District of Wisconsin
Trial and Deposition Testimony

Verinata Health, Inc. and the Board of Trustees of the Leland Stanford Junior
University v. Sequenom, Inc. and Sequenom Center for Molecular Medicine,
LLC.
Case No. 3:12-cv-00865-SI
Deposition Testimony

Verinata Health, Inc. v. Ariosa Diagnostics, Inc.
Case No. 3:12-cv-055501-SI
United States District Court for the Northern District of California
Trial and Deposition Testimony

Viacom International Inc. v. MGA Entertainment, Inc.
Case No.: 2:15-cv-09621-R (Ex)
United States District Court for the Central District of California
Deposition Testimony

VimpelCom Ltd. v. Orascom TMT Investments S.a.r.l.
London Court of International Arbitration
Arbitration No: 153077
Hearing Testimony

Volterra Semiconductor Corporation v. Primarion, Inc., Infineon Technologies
AG and Infineon Technologies North America Corporation
Case No. C 08-05129 CRB
United States District Court for the Northern District of California San
Francisco Division
Deposition Testimony

Wang Laboratories, Inc. v. America Online, Inc. and Netscape Communications
Corporation
Civil Action No. 97-1628-A
United States District Court for the Eastern District of Virginia
Deposition Testimony

Wang Laboratories, Inc. v. FileNet Corporation
Civil Action No. 94-12141-RCL
Deposition Testimony

Waukesha Cherry-Burrell v. Wrightech Corporation
Civil Action No. 96-CV-00384
Deposition Testimony



Waymo LLC v. Uber Technologies, Inc., Ottomotto LLC and Otto Trucking LLC

Case No. 3:17-cv-00939-WHA

United States District Court for the Northern District of California San

Francisco Division

Deposition Testimony

Whirlpool Corporation v. Drinker Biddle & Reath LLP et al.

Case No. 2015-L-007631

Circuit Court of Cook County, Illinois

Trial and Deposition Testimony

Zenith Electronics LLC, Panasonic Corporation, U.S., Philips Corporation, and the Trustees of Columbia University in the City of New York v. Sceptre, Inc.

Case No. 9:13-CV-80567

United States District Court for the Central District of California

Deposition Testimony

Zenith Electronics LLC v. Vizio, Inc.; Westinghouse Digital Electronics LLC, et al.

No. 5:06CV246-DF

United States District Court for the Eastern District of Texas

Texarkana Division

Deposition Testimony

Zii Labs Inc., Ltd. v. Samsung Electronics Co. Ltd (and related Samsung parties) and Apple Inc.

Case No. 2:14-cv-00203

United States District Court for the Eastern District of Texas Marshall Division

Deposition Testimony

PATENTS

Inventor, United States Patent No. 5,752,186, Access Free Wireless Telephony Fulfillment Service System, May 12, 1998.

Inventor, United States Patent No. 5,867,780, Access Free Wireless Telephony Fulfillment Service System, February 2, 1999.

Inventor, United States Patent No. 6,397,057, System and Method of Providing Advertising Information to a Subscriber Through a Wireless Device, May 28, 2002.

Inventor, United States Patent No. 6,411,803, System and Method of Providing Service Information to a Subscriber Through a Wireless Device, June 25, 2002.

Inventor, United States Patent No. 6,769,767, Eyewear with Exchangeable Temples Housing a Transceiver Forming Ad Hoc Networks with Other Devices, August 3, 2004.

Inventor, United States Patent No. 6,839,556, System and Method of Providing Information to a Subscriber through a Wireless Device, January 4, 2005.



Inventor, United States Patent No. 6,911,172, Method of Manufacturing Eyewear, June 28, 2005.

Inventor, United States Patent No. 6,929,365, Eyewear with Exchangeable Temples Housing Bluetooth Enable Apparatus, August 16, 2005.

Inventor, United States Patent No. 7,181,200, Method of Providing Information to a Telephony Subscriber, February 20, 2007.

Inventor, United States Patent No. 7,353,202, System and Method of Risk Minimization and Enhanced Returns In An Intellectual Capital Based Venture Investment, April 1, 2008.

Inventor, United States Patent No. 7,769,685, System and Method of Risk Minimization and Enhanced Returns In An Intellectual Capital Based Venture Investment, August 3, 2010.

Inventor, United States Patent No. 7,813,716, Method of Providing Information to a Telephony Subscriber, October 12, 2010.

Inventor, United States Patent No. 7,885,897, Intellectual Property Trading Exchange and a Method for Trading Intellectual Property Rights, February 8, 2011.

Inventor, United States Patent No. 7,930,231, System and Method of Risk Minimization and Enhanced Returns In An Intellectual Capital Based Venture Investment, April 19, 2011.

Inventor, United States Patent No. 7,987,142, Intellectual Property Trading Exchange, July 26, 2011.

Inventor, United States Patent No. 8,041,341, System of Providing Information to a Telephony Subscriber, October 18, 2011.

Inventor, United States Patent No. 8,180,711, Intellectual Property Trading Exchange, May 15, 2012.

Inventor, United States Patent No. 8,255,932, System and Method for Managing Intellectual Property-Based Risks, January 15, 2013.

Inventor, United States Patent No. 8,515,851, Method and System for Generating an Index of Securities, August 20, 2013.

Inventor, United States Patent No. 8,554,687, Intellectual Property Trading Exchange and a Method for Trading Intellectual Property Rights, October 8, 2013.

Inventor, United States Patent No. 8,694,419, Methods and Systems for Utilizing Intellectual Property Assets and Rights, April 8, 2014.



Inventor, United States Patent No. 8,787,878, System of Providing Information to a Telephony Subscriber, July 22, 2014.

Inventor, United States Patent No. 8,831,985, Financial Instrument Based on Content and Methods for Valuation, September 9, 2014.

Inventor, United States Patent No. 8,880,031, System of Providing Information to a Telephony Subscriber, November 4, 2014.

Inventor, United States Patent No. 9,058,628, Marketplace for Trading Intangible Asset Derivatives and a Method for Trading Intangible Asset Derivatives, June 16, 2015.

Inventor, United States Patent No. 9,244,292, Eyewear with Exchangeable Temples Housing A Radio Frequency, January 26, 2016.

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Appendix 2

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

DOCUMENTS CONSIDERED

Appendix 2.1

Beginning Bates No.	Ending Bates No.	Beginning Bates No.	Ending Bates No.	Beginning Bates No.	Ending Bates No.
10X-000000002	10X-000000002	10XMA00060644	10XMA00060851	BIOR00014116	BIOR00014116
10X-000082148	10X-000082148	10XMA00060852	10XMA00060996	BRL00080469	BRL00080484
10X-000143219	10X-000143267	10XMA00061082	10XMA00061288	BRLITC-00192109	BRLITC-00192109
10X-000148313	10X-000148350	10XMA00061289	10XMA00061591	BRLITC-00196392	BRLITC-00196392
10X-000248101	10X-000248121	10XMA00061593	10XMA00061671	BRLITC-00196404	BRLITC-00196404
10X-000248122	10X-000248140	10XMA00061672	10XMA00061789	BRLITC-00196417	BRLITC-00196417
10X-000250046	10X-000250053	10XMA00062119	10XMA00062330	BRLITC-00654963	BRLITC-00654963
10X-000250055	10X-000250055	10XMA00063393	10XMA00063517	BRLITC-00668491	BRLITC-00668496
10X-000252825	10X-000252825	10XMA00063609	10XMA00063644	BRLITC-00668497	BRLITC-00668504
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10X-000257246	10X-000257261	10XMA00063864	10XMA00063878	BRLITC-00692006	BRLITC-00692087
10X-000546015	10X-000546015	10XMA00064019	10XMA00064029	BRLITC-00692088	BRLITC-00692093
10X1679-000012322	10X1679-000012332	10XMA00064032	10XMA00064045	BRLITC-00726504	BRLITC-00726504
10X1679-000012990	10X1679-000012990	10XMA00159018	10XMA00159062	BRLITC-01177412	BRLITC-01177412
10X1679-000030137	10X1679-000030189	10XMA00159063	10XMA00159063	BRLITC-01758000	BRLITC-01758000
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10X1679-000041075	10X1679-000041080	10XMA00197979	10XMA00197979	BRMA00118001	BRMA00118001
10XG-0000525961	10X10000525961	10XMA00355091	10XMA00355156	BRMA00118002	BRMA00118013
10XITC_10X-000591373	10XITC_1010000591379	10XMA00355157	10XMA00355158	BRMA00118014	BRMA00118016
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10XMA00009653	10XMA00009655	BIOR00006528	BIOR00006539	BRMA00127040	BRMA00127040
10XMA00029035	10XMA00029102	BIOR00009743	BIOR00009745	BRMA00127041	BRMA00127041
10XMA00029138	10XMA00029186	BIOR00009748	BIOR00009750	BRMA00127042	BRMA00127042
10XMA00031430	10XMA00031441	BIOR00009876	BIOR00009888	BRMA00127043	BRMA00127043
10XMA00031442	10XMA00031462	BIOR00011972	BIOR00011972	BRMA00127044	BRMA00127044
10XMA00040465	10X1000040511	BIOR00013527	BIOR00013532	RDTX00023589	RDTX00023607
10XMA00059639	10XMA00059659	BIOR00013533	BIOR00013540	RDTX00023608	RDTX00023611
10XMA00059933	10XMA00059987	BIOR00013541	BIOR00013577	RDTX00023612	RDTX00023613
10XMA00059988	10XMA00060241	BIOR00013578	BIOR00013640	RDTX00023614	RDTX00023653
10XMA00060242	10XMA00060434	BIOR00013641	BIOR00013721	RDTX00023654	RDTX00023698
10XMA00060435	10XMA00060473	BIOR00013722	BIOR00013778	RDTX00023699	RDTX00023719
10XMA00060474	10XMA00060557	BIOR00013779	BIOR00013796	RDTX00023720	RDTX00023723
10XMA00060558	10XMA00060643	BIOR00013816	BIOR00013853	RDTX00023724	RDTX00023727

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.
DOCUMENTS CONSIDERED
 Appendix 2.1

Beginning Bates No.	Ending Bates No.	Beginning Bates No.	Ending Bates No.	Beginning Bates No.	Ending Bates No.
RDTX00023728	RDTX00023731	STFR00023986	STFR00024024	STUS00003105	STUS00003105
RDTX00023732	RDTX00023735	STFR00024025	STFR00024085	STUS00003106	STUS00003106
RDTX00023736	RDTX00023738	STFR00024818	STFR00024818	STUS00014349	STUS00014349
RDTX00023739	RDTX00023820	STFR00027301	STFR00027309	STUS00014645	STUS00014698
RDTX00023821	RDTX00023826	STFR00037140	STFR00037146	STUS00014699	STUS00014715
RDTX00023827	RDTX00023841	STFR00037315	STFR00037315	STUS00014719	STUS00014719
RDTX00024273	RDTX00024277	STFR00037872	STFR00037873	STUS00014721	STUS00014817
RDTX00102093	RDTX00102158	STFR00038201	STFR00038213	STUS00014818	STUS00014818
RDTX00103041	RDTX00103043	STFR00040169	STFR00040170	STUS00014823	STUS00014823
RDTX00104077	RDTX00104097	STFR00041348	STFR00041358	STUS00014830	STUS00014830
RDTX00104652	RDTX00104712	STFR00041978	STFR00041993	STUS00018048	STUS00018048
RDTX00107215	RDTX00107243	STFR00056344	STFR00056346	STUS00019080	STUS00019091
RDTX00110590	RDTX00110593	STFR00066692	STFR00066806	STUS00024438	STUS00024459
STFR00000015	STFR00000016	STFR00067221	STFR00067231	STUS00031448	STUS00031448
STFR00000127	STFR00000147	STFR00090348	STFR00090348	STUS00031449	STUS00031449
STFR00000224	STFR00000278	STFR00139416	STFR00139490	UCTX00000003	UCTX00000021
STFR00000430	STFR00000466	STFR00146266	STFR00146319	UCTX00000022	UCTX00000039
STFR00002106	STFR00002109	STUS00000001	STUS00000034	UCTX00000040	UCTX00000056
STFR00002576	STFR00002605	STUS00000995	STUS00001016	UCTX00000057	UCTX00000074
STFR00021308	STFR00021382	STUS00001445	STUS00001463	UCTX00000075	UCTX00000078
STFR00021383	STFR00021462	STUS00001562	STUS00001575	UCTX00000079	UCTX00000080
STFR00022201	STFR00022225	STUS00001669	STUS00001674	UCTX00000081	UCTX00000084
STFR00022398	STFR00022476	STUS00001771	STUS00001776	UCTX00000085	UCTX00000086
STFR00022771	STFR00022771	STUS00001779	STUS00001803	UCTX00000087	UCTX00000105
STFR00022831	STFR00022881	STUS00001864	STUS00001864	UCTX00100189	UCTX00100193

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DOCUMENTS CONSIDERED

Appendix 2.2

Depositions and Deposition Exhibits

Bio-Rad Representatives

Deposition of Darren R. Link, Ph.D., October 7, 2020
Deposition of James Stark, October 5, 2020
Deposition of Erin Chia, September 23, 2020
Deposition of John Goetz, September 18, 2020
Deposition of Erika Trauzzi, October 8, 2020
Deposition of John Boyce, September 29, 2020
Deposition of Jeremy Agresti, September 29, 2020
Deposition of Sanford Wadler, September 17, 2020
Deposition of Michael Hunkapiller, September 24, 2020
Deposition of John Luckey, Ph.D., September 11, 2020
Deposition of Carolyn Reifsnnyder, September 25, 2020
Deposition of Ronald Lebofsky, Ph.D., September 16, 2020
Deposition of Jason Buenrostro, Ph.D., September 29, 2020
Deposition of Eric Ginsburg, Ph.D., October 2, 2020
Deposition of Mark DiPanfilo, September 25, 2020

10X Representatives

Deposition of Richard Fair, Ph.D., July 30, 2020
Deposition of Justin McAnear, October 7, 2020
Deposition of Sam Ropp, Ph.D., October 1, 2020
Deposition of Tobias Wheeler, Ph.D., September 24, 2020
Deposition of Eric Whitaker, August 7, 2020

██████████
Deposition of ██████████, October 8, 2020
Deposition of ██████████, October 5, 2020
Deposition of ██████████, Ph.D., August 7, 2020

Testimony from *Bio-Rad Laboratories, Inc. and The University of Chicago v. 10x Genomics, Inc.* 1:15-cv-00152 (D. Del.):

Deposition of Darren R. Link, Ph.D., May 2, 2017
Deposition of Adam Lowe, Ph.D., April 19, 2017
Deposition of Jeffrey Olson, March 29, 2017
Deposition of Jamie Osborn, April 11, 2017
Deposition of Dr. Viresh Patel, June 22, 2017

Other

Deposition of Andrew Jay Martin Ross, October 8, 2020
Deposition of Sanford Wadler, September 17, 2020

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

DOCUMENTS CONSIDERED

Appendix 2.2

U.S. Patents

U S Patent No 6,814,934

U S Patent No 8,871,444

U S Patent No 9,919,277

U S Patent No 9,968,933

Expert Reports and Declarations

Expert Report of Bruce Gale, Ph D , February 5, 2021

Court Filings & Discovery

Bio-Rad's Infringement Contentions to 10X, U S Patent No 9,919,277

Bio-Rad's Infringement Contentions to 10X, U S Patent No 8,871,444

Bio-Rad Laboratories, Inc 's Second Supplemental Responses and Objections to 10X Genomics, Inc 's Second Set of Interrogatories (Nos 6-8), October 1, 2020

Case Law

35 U S C § 284

Applera Corp. v. Bio-Rad Laboratories, et al. , 3:04-cv-1881 (D Conn)

Sun Studs, Inc. v. ATA Equip. Leasing, Inc. , 872 F 2d 978, 993 (Fed Cir 1989)

Georgia-Pacific Corp. v. United States Plywood Corp. , 318 F Supp 1116, (S D N Y 1970)

Prism Technologies LLC v. Sprint Spectrum L.P. , 849 F 3d 1360, 1369 (Fed Cir 2017)

Commonwealth Sci. & Indus. Research Organisation v. Cisco Sys., Inc. , 809 F 3d 1295, 1303 (Fed Cir 2015), cert denied, 136 S Ct 2530, 195 L Ed 2d 859 (2016)

Third Party Sources

"10x Genomics Launches GemCode Platform, Provides Long Range Information with Short Read Sequencing," *10X Genomics* , February 25, 2015, <https://www.10xgenomics.com/news/10x-genomics-launches-gemcode-platform-provides-long-range-information-with-short-read-sequencing/>

"10X Genomics' New Chromium System Enables Full Access to Critical Molecular and Cellular Information," *10X Genomics* , February 11, 2016, <https://www.10xgenomics.com/news/10x-genomics-new-chromium-system-enables-full-access-to-critical-molecular-and-cellular-information/>

"About Us," *Medical Research Council* , <https://mrc.ukri.org/about/>

"About Us," *Stilla Technologies* , <https://www.stillatechnologies.com/about/>

"About Us," *UK Research and Innovation* , <https://www.ukri.org/about-us/>

"Applera Corporation Completes Separation of its Celera Business and is Renamed Applied Biosystems Inc.," *BioSpace* , July 1, 2008, <https://www.biospace.com/article/releases/applera-corporation-completes-separation-of-its-b-celera-b-business-and-is-renamed-applied-biosystems-/>

"Applied Biosystems, Inc.," *Crunchbase* , <https://www.crunchbase.com/organization/applied-biosystems>

"ATAC-Seq for Chromatin Accessibility Analysis," *Illumina* , <https://www.illumina.com/techniques/popular-applications/epigenetics/atac-seq-chromatin-accessibility.html>

"Bio-Rad Acquires QuantaLife and Digital PCR Technology," *Bio-Rad* , October 5, 2011, https://www.bio-rad.com/en-us/corporate/newsroom/bio-rad-acquires-quantalife-digital-pcr-technology?ID=Bio-Rad-Acquires-Qua_1521570626

"Bio-Rad Laboratories – Annual Report 2016," *Bio-Rad Laboratories* , https://www.bio-rad.com/webroot/web/pdf/corporate/annualreport/Annual_Report_2016.pdf

"Bio-Rad Laboratories, Inc.," *Bloomberg* , <https://www.bloomberg.com/profile/company/BIO/B:US>

"Bio-Rad to Acquire RainDance Technologies and Droplet Intellectual Property," *Bio-Rad Laboratories, Inc.* , January 16, 2017, <https://web.archive.org/web/20170330003940/http://www.bio-rad.com/en-us/corporate/newsroom/bio-rad-to-acquire-raindance-technologies-and-droplet-intellectual-property>

"Bio-Rad to Acquire RainDance Technologies," *Genetic Engineering & Biotechnology News* , January 16, 2017, <https://www.genengnews.com/topics/omics/bio-rad-to-acquire-raindance-technologies/>

"Caliper Life Sciences, Inc.," *Bloomberg* , <https://www.bloomberg.com/profile/company/CALP:US>

"Company Overview of RainDance Technologies, Inc.," *Bloomberg* , <https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=23315364>

"Company," *RainDance* , <https://web.archive.org/web/20160809142630/http://raindancetech.com/about/>

"David A. Weitz," *Harvard University* , <https://www.physics.harvard.edu/people/facpages/weitz>

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

DOCUMENTS CONSIDERED

Appendix 2.2

Third Party Sources (continued)

“ddSEQ Single-Cell Isolator,” *Bio-Rad*, <https://www.bio-rad.com/en-us/product/ddseq-single-cell-isolator?ID=OKNWBSE8Z>

“Global ‘Life Sciences’ Royalty Rates & Deal Terms Survey – 2016,” *Licensing Executives Society*, February 2017

“Illumina and Bio-Rad Launch Solution for Single-Cell Genomic Sequencing to Enable Robust Study of Complex Diseases,” *Business Wire*, January 9, 2017, <https://www.businesswire.com/news/home/20170109006365/en/Illumina-and-Bio-Rad-Launch-Solution-for-Single-Cell-Genomic-Sequencing-to-Enable-Robust-Study-of-Complex-Diseases>

“In the Public Interest: Nine Points to Consider in Licensing University Technology,” <http://news.stanford.edu/news/2007/march7/gifs/whitepaper.pdf>

“Investor FAQs,” *10X*, <https://investors.10xgenomics.com/investor-resources/investor-faqs>

“Microfluidics,” *Harvard University*, <https://weitzlab.seas.harvard.edu/research/microfluidics>

“Next GEM Technology,” *10X Genomics*, <https://www.10xgenomics.com/technology/>

“Organization,” *ESPCI Paris*, <https://www.espci-psl.eu/en/espci-paris-psl/organization/>

“Pacific Biosciences and RainDance Technologies Partner to Co-Develop and Commercialize Novel Solution For de novo Whole Genome Assembly,” *Global Newswire*, May 5, 2015, <https://www.globenewswire.com/news-release/2015/05/05/732360/10132773/en/Pacific-Biosciences-and-RainDance-Technologies-Partner-to-Co-Develop-and-Commercialize-Novel-Solution-For-de-novo-Whole-Genome-Assembly.html>

“PerkinElmer to Acquire Caliper Life Sciences for Approximately \$600 Million,” *Business Wire, Inc.*, September 8, 2011, <http://www.businesswire.com/news/home/20110908005742/en/PerkinElmer-Acquire-Caliper-Life-Sciences-Approximately-600>

“Profitability and Royalty Rates Across Industries: Some Preliminary Evidence,” *KPMG*, November 2012, <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/09/gvi-profitability.pdf>

“Public Patent Application Information Retrieval – U.S. Patent No. 8,871,444,” *USPTO Public PAIR*, <https://portal.uspto.gov/pair/PublicPair>

“Public Patent Application Information Retrieval – U.S. Patent No. 9,919,277,” *USPTO Public PAIR*, <https://portal.uspto.gov/pair/PublicPair>

“QuantaLife Inc.,” *Bloomberg*, <https://www.bloomberg.com/profile/company/8172982Z:US>

“RainDance Technologies Selected as a World Economic Forum Technology Pioneer,” *RainDance*, November 29, 2007, <https://web.archive.org/web/20170501054717/http://raindancetech.com/raindance-technologies-selected-as-a-world-economic-forum-technology-pioneer/>

“RainDance Technologies to be Sold to Bio-Rad,” *RainDance*, January 16, 2017, <https://web.archive.org/web/20170407122913/http://raindancetech.com/raindance-technologies-to-be-sold-to-bio-rad/>

“RainDance Technologies,” *Crunchbase*, <https://www.crunchbase.com/organization/raindance-technologies>

“Revolutionizing Gene Expression with Single Cell RNA-seq,” *10X Genomics*, <https://www.10xgenomics.com/single-cell-technology>

“RNA Sequencing (RNA-Seq) Methods for NGS,” *Thermo Fisher Scientific*, <https://www.thermofisher.com/us/en/home/life-science/sequencing/sequencing-learning-center/next-generation-sequencing-information/ngs-basics/rna-sequencing-methods.html>

“Single Cell Genomics (SCG): Market Size, Segmentation, Growth, Competition and Trends,” *DeciBio Consulting, LLC*, August 2013

“Single-Cell (Multi)omics Technologies,” *Annual Reviews*, https://www.annualreviews.org/doi/full/10.1146/annurev-genom-091416-035324#_i25

“Single-Cell Genomics,” *American Association for Clinical Chemistry*, August 1, 2019, <https://academic.oup.com/clinchem/article/65/8/972/5608497>

“Statement of Policy in Regard to Intellectual Property (IP Policy),” *Harvard*, <https://otd.harvard.edu/faculty-inventors/resources/policies-and-procedures/statement-of-policy-in-regard-to-intellectual-property/>

“Status of the Microfluidics Industry, 2017 Report - Sample” *Yole Développement*, May 2017, https://www.slideshare.net/Yole_Developpement/status-of-the-microfluidics-industry-2017-report-by-yole-developpement

“Testing the Water: RainDance is Stalking Cancer Drop by Drop,” *GE*, March 3, 2014, <https://www.ge.com/news/reports/testing-the-water>

“The Economic Contribution of University/Nonprofit Inventions in the United States: 1996-2017,” *Biotechnology Innovation Organization & AUTM*, June 5, 2019, https://autm.net/AUTM/media/About-Tech-Transfer/Documents/Economic_Contribution_Report_BIO_AUTM_JUN2019_web.pdf

“The Illumina® Bio-Rad Single-Cell Sequencing Solution,” *Bio-Rad*, <https://info.bio-rad.com/ww-ddseq.html>

“The Power of Single Cell Partitioning,” *10X Genomics*, https://pages.10xgenomics.com/rs/446-PBO-704/images/10x_BR025_Chromium-Brochure_Letter_Digital.pdf

“What We Do,” *Medical Research Council*, <https://mrc.ukri.org/about/what-we-do/>

10X Genomics, Inc. Public Company Profile, S&P Cap IQ

10X Genomics, Inc. SEC Form 10-K for the year ended December 31, 2019

10X Genomics, Inc., SEC Form 10-K for the fiscal year ended December 31, 2019

Association of American Universities, “Major universities offer guidelines for responsible technology licensing,” March 6, 2007, <https://www.aau.edu/newsroom/press-releases/nine-points-consider-licensing-university-technology>

Association of University Technology Managers, Nine Points to Consider, <https://autm.net/about-tech-transfer/principles-and-guidelines/nine-points-to-consider-when-licensing-university>

Bio-Rad Laboratories, Inc. Public Company Profile, CapitalIQ

Bio-Rad Laboratories, Inc. SEC Form 10-K for the year ended December 31, 2019

Bio-Rad Laboratories, Inc. SEC Form 10-Q for the quarter ended March 31, 2017

George M. Whitesides, “The Origins and the Future of Microfluidics,” *Nature*, July 2006, Vol. 442

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

DOCUMENTS CONSIDERED

Appendix 2.2

Third Party Sources (continued)

RainDance Technologies, Inc. Private Company Profile, S&P Capital IQ

Slottje, Daniel, Economic Damages in Intellectual Property, 2006

Stanford News Service, “Major universities offer guidelines for responsible technology licensing,” March 6, 2007, <https://news.stanford.edu/pr/2007/pr-tech-030707.html>

Appendix 3

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

CALCULATION OF REASONABLE ROYALTIES, Q2 2019 - Q2 2020

Exhibit 3.1

	2019	2020
[1] Royalty Base		
Royalty Rate		
Reasonable Royalty Damages		

Notes:

[1] Exhibit 3.2.

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

CALCULATION OF ROYALTY BASE, Q2 2019 - Q2 2020 [1]

Exhibit 3.2

	2019	2020
Instrument Revenues		
Consumable Revenues		
Royalty Base		

Notes:

[1] Exhibit 3.3.

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

CALCULATION OF 10X QUARTERLY ACCUSED INSTRUMENT AND CONSUMABLE REVENUES, Q2 2019 - Q2 2020 [1]

Exhibit 3.3

Instrument Sales

Chromium Controller & Next GEM Accessory Kit, 12 Mo. Warranty

Consumable Sales

Chromium™ Next GEM Chip G Single Cell Kit, 48 rxns

Chromium™ Next GEM Chip G Single Cell Kit, 16 rxns

Chromium™ Next GEM Chip G Automated Single Cell Kit, 48 rxns

Chromium™ Next GEM Chip G Automated Single Cell Kit, 16 rxns

Chromium™ Next GEM Chip H Single Cell Kit, 48 rxns

Chromium™ Next GEM Chip H Single Cell Kit, 16 rxns

Chromium Next GEM Training Reagents, Gel Beads and Chip Kits

Chromium™ Next GEM Single Cell ATAC Library & Gel Bead Kit v1.1, 16 rxns

Chromium™ Next GEM Single Cell ATAC Library & Gel Bead Kit v1.1, 4 rxns

Chromium™ Next GEM Single Cell 3' GEM, Library & Gel Bead Kit v3.1, 16 rxns

Chromium™ Next GEM Single Cell 3' GEM, Library & Gel Bead Kit v3.1, 4 rxns

Chromium™ Next GEM Automated Single Cell 3' Library and Gel Bead Kit v3.1, 24 rxns

Chromium™ Next GEM Automated Single Cell 3' Library and Gel Bead Kit v3.1, 4 rxns

Chromium Next GEM Single Cell 3' Library Kit v3.1, 16 rxns - 1000157

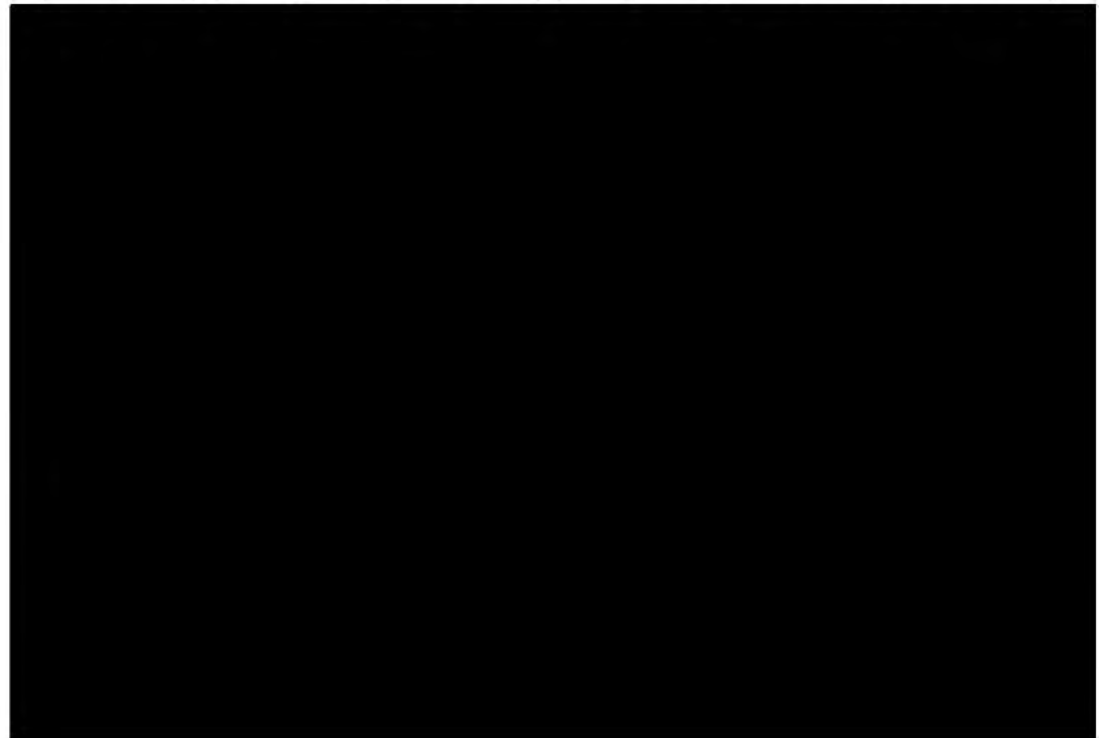
Chromium™ Next GEM Single Cell 5' Library and Gel Bead Kit v1.1, 16 rxns

Chromium™ Next GEM Single Cell 5' Library and Gel Bead Kit v1.1, 4 rxns

Total Consumable Sales

Total Next GEM Instrument and Consumable Sales

2019			2020		Total
Q2	Q3	Q4	Q1	Q2	



Notes:

[1] 10XMA00197979.

Appendix 4

Bio-Rad Laboratories, Inc., et al., v. 10X Genomics, Inc.

SUMMARY OF 10X COMPANY-WIDE PROFIT & LOSS STATEMENT, APRIL 2016 - AUGUST 2020 [1]

Exhibit 4.1

	2016 Apr - Dec	2017	2018	2019	2020 Jan - Aug	Total
Sales						
Total Sales						
Cost of Sales						
Gross Profit						
<i>Gross Margin %</i>						
Expenses						
G & A						
R & D						
Sales & Marketing						
Operations						
Allocations						
Total Expenses						
Net Ordinary Income						
<i>Net Ordinary Income Margin %</i>						
Net Other Income						
Net Income						
<i>Net Margin %</i>						

Notes:

[1] Deposition of Justin McAnear, October 7, 2020, Exhibit 8 (10XMA00197978).